BRAZEAU-PEMBINA
SUB-REGIONAL
INTEGRATED RESOURCE PLAN

Approved by the Economic Planning
Committee of Cabinet on April 8, 1986

1986
Edmonton

Alberta
FORESTRY
Resource Evaluation and Planning Division

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PREFACE

This planning document was prepared by involved government agencies and public consultants in recognition of the need for improved management of Alberta's lands and resources. It applies only to public lands within the Brazeau-Pembina Planning Area, and not to any private lands.

The plan presents the Government of Alberta's resource management policy for the public lands and resources within the area. It is intended to be a guide to resource managers, industry and publics having responsibilities or interests in the area rather than a regulatory mechanism. Resource potentials and opportunities for development are identified with a view to assisting in the economic progress of Alberta. The plan is sufficiently flexible so that all future proposals for land use and development may be considered. No legitimate proposals will be categorically rejected. The provincial government is committed to serving Albertans; should a proposal not be in keeping with the provisions of the plan, alternative means will be explored for accommodating the proposal in a more appropriate location either in this planning area or on other public lands. The rejection of any proposals will be done only in writing by the Minister of Forestry or his designate.

A detailed outline for implementation will be provided for this sub-regional plan in order to identify the necessary implementation actions and roles. This implementation outline will also provide for the continuing review of the plan to accommodate changing needs and situations. Wherever possible, the private sector will be provided the opportunity to be actively involved in the operational delivery of the plan.

Implementation of the plan is to be subject to the normal budgetary approval process with overall priorities to be established with consideration of opportunities in other planning areas and areas currently outside the planning process. While the plan identifies resource potentials and opportunities, the realization of these may require the dedication of major amounts of public funds. The plan will be used on the understanding that any actions required for implementation will be undertaken only as budgetary approvals are given in the normal way. The private sector will be given the first opportunity to provide any development required.

This plan has no legal status and is subject to revisions or review at the discretion of the Minister of Forestry.

HIGHLIGHT SUMMARY

The Brazeau-Pembina Integrated Resource Plan is a statement of provincial government resource management policy for 2 950 km^2 (1 140 mi.^{2}) of largely unsettled, forested land in west central Alberta to the immediate southwest of Drayton Valley. The planning area is dissected by several river and creek valleys and is characterized by gently rolling, foothills topography with increasing elevation as one moves west. The Brazeau Reservoir is a dominant feature in the area.

The plan resolves existing and potential conflicts and provides positive, future-oriented direction for management of a wide range of resources and resource uses. Water, watershed, minerals, timber, wildlife, fisheries, recreational, forage, agricultural, ecological, historical, and tourism resources are addressed in the plan. Use of these resources provides a corresponding broad range of social and economic benefits to the residents of the area and Albertans, in general. The overall resource management intent for the Brazeau-Pembina Planning Area is to allow for utilization of the full range of available resources while recognizing watershed and other environmental considerations. The plan contains resource management objectives and guidelines for each resource sector for the planning area and for specific resource management areas. Refinement of the Eastern Slopes Policy zoning within the planning area further contributes to the geographic location of resource management objectives and guidelines. The plan is consistent with A Policy for Resource Management of the Eastern Slopes, Revised 1984.

The Brazeau-Pembina plan provides for protection and continued use of water, watershed, wildlife, fisheries, ecological, tourism and recreational resources. Petroleum and natural gas are particularly important in the planning area and increased exploration and development of these resources are supported in the plan. A large portion of the planning area is within the Brazeau Timber Development Area and increased use of timber resources is expected. Agricultural capability and demand in the eastern portion of the planning area will be assessed over the next five years. The need for access management in the area is recognized and a pilot project to evaluate designated vehicle routes as a technique for management of motorized recreational vehicle access has been proposed.

A public involvement program was completed during plan development and a wide range of comments were received. Public support for environmental protection and maintenance of public recreational opportunities on the Brazeau Reservoir was evident. Other major areas of concern were potential agricultural development and the possibility of excessive restrictions on all-terrain vehicles, snowmobiles and coal development.

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1. INTRODUCTION

A Policy for Resource Management of the Eastern Slopes (Eastern Slopes Policy), approved by provincial cabinet in July 1977, and revised in 1984, identifies integrated resource management planning under a comprehensive interagency approach as the means for effective management of the resources of the Eastern Slopes region of Alberta. To implement this policy, the Resource Planning Branch of the Alberta Department of Forestry has been given the responsibility of coordinating the preparation of integrated resource management plans on a priority basis for agencies with resource management concerns for public lands and resources within designated planning areas.

In January 1978 the Energy and Natural Resources/Recreation and Parks Interdepartmental Assistant Deputy Ministers Committee, acting upon a request from the Alberta Forest Service (AFS), identified the Rocky-Clearwater Forest as a priority for integrated resource management planning. In response to a directive from this committee, the Rocky-Clearwater Management Overview was initiated in April, 1978 and completed for approval by the director-level Resource Integration Committee in May, 1980. The overview provided a framework for integrated resource management planning in the Rocky-Clearwater region and established priorities for the completion of plans within this region. The Brazeau-Pembina Planning Area was identified as the first priority for integrated resource planning within the Clearwater Forest and a sub-regional plan for the area was initiated as part of the 1979/80 planning program.

2. THE PLANNING AREA

The Brazeau-Pembina Planning Area is a 2 950 km^2 tract of land located southwest of the town of Drayton Valley in west-central Alberta (see Figure 1). The planning area encompasses portions of the watersheds of the Pembina, Blackstone and Brazeau rivers and the entire Elk River watershed. The boundary of the planning area, roughly speaking, is as follows:

- North - the south bank of the Pembina River to the east side of Range 16, west of 5, then south to the watershed divide between Dismal Creek and the Elk River - west following the watershed divide between the Pembina and Brazeau rivers to the Forestry Trunk Road;
- West - south along the Forestry Trunk Road to the watershed divide between the Blackstone and Nordegg rivers;
- South - east along the divide between the Brazeau and Nordegg rivers to their confluence then east along the north shore of the Brazeau River to its confluence with the North Saskatchewan River;
- East - north along the west bank of the North Saskatchewan to the Green Area boundary, then along this boundary to the Pembina River.

The Brazeau-Pembina Planning Area is bordered on the south by the Rocky-North Saskatchewan Integrated Resource Planning Area and on the west by the Nordegg-Red Deer River Integrated Resource Planning Area.

The Brazeau-Pembina Integrated Resource Plan deals only with Crown lands and resources and no planning was done for patent land or for Crown resources under patent land. However, the effects of land uses in these areas and in adjacent areas along the periphery of the planning area were considered.

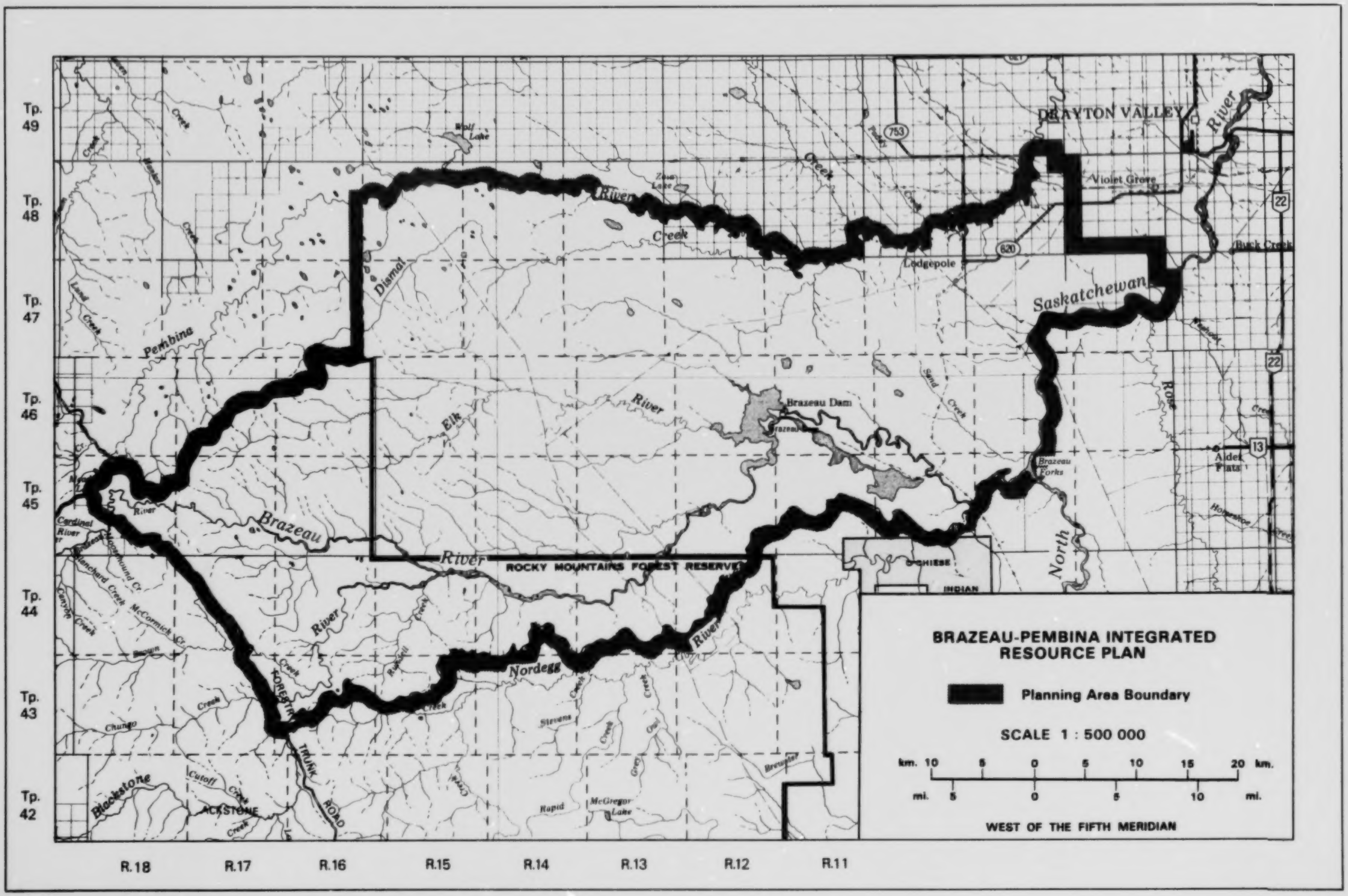

BRAZEAU-PEMBINA INTEGRATED RESOURCE PLAN
Planning Area Boundary
SCALE 1 : 500 000
km. 10 5 0 5 10 15 20 km.
mi. 5 0 5 10 mi.
WEST OF THE FIFTH MERIDIAN
Tp. 49
Tp. 48
Tp. 47
Tp. 46
Tp. 45
Tp. 44
Tp. 43
Tp. 42
R.18
R.17
R.16
R.15
R.14
R.13
R.12
R.11
DRAYTON VALLEY
Violet Grove
Lodgepole
Saskatchewan
North
River
Brazeau Dam
Brazeau Forks
Alder Flats
Elk River
Brazeau River
Pembina River
Dismal Creek
Nordegg River
ROCKY MOUNTAINS FOREST RESERVE
O'CHIESE INDIAN
FORESTRY TRUNK ROAD
Wolf Lake
Zeus Lake
Sand Creek
Rose Creek
Buck Creek
Blackstone
Cutoff Creek
Chungo
Cardinal River
Blanchard Creek
McCormick Cr.
Canyon Creek
Land Creek
Stevens
McGregor Lake
Rapid
753
820
22
13

Figure 1. BRAZEAU-PEMBINA PLANNING AREA

3. INTEGRATED RESOURCE PLANNING CONTEXT

3.1 Integrated Resource Management and Planning

The Alberta government is responsible for management of the provincial resource base and works to optimize the use of all natural resources in order to provide maximum benefits for Albertans, now and in the future. The government is committed to an integrated approach to resource management which recognizes that management and use of one resource may affect management and use of another resource. Integrated resource management attempts to reduce or resolve any negative interactions and enhance or promote positive interactions between resource management and use activities. Co-operation, communication, coordination and comprehensive consideration of resource values are fundamental aspects of the concept of integrated resource management.

Integrated resource planning is a decision-making process which is an integral component of integrated resource management. In integrated resource planning, the resource planning initiatives of various government agencies are compared and subsequently confirmed or modified to achieve a planning product which is acceptable to all the involved agencies. An integrated resource plan provides direction for field-level resource management decision-making in the form of a set of resource management objectives and a course of action to achieve those objectives. The Brazeau-Pembina Integrated Resource Plan was developed in the context of integrated resource management and planning.

3.2 Planning Process and History

The general purpose of the integrated resource planning process is to develop an integrated resource plan which provides direction for the management of natural resources within the Brazeau-Pembina Planning Area. The process attempts to integrate government resource planning initiatives by clarifying resource management objectives and guidelines and by resolving identified conflicts or concerns. The process also geographically locates resource management objectives by confirming or revising the 1984 Eastern Slopes Policy zone boundaries.

The planning process for development of sub-regional integrated resource plans consists of a series of interrelated action steps. The steps are sequential with the exception of the data gathering and analysis step, which can occur throughout the process. The process is also resilient in that the sequence of events may be interrupted to return to a previous step, if required. The planning process consists of the following six steps:

1. Plan initiation - including preparation of a Terms of Reference
2. Data gathering and analysis
3. Policy formulation - including preparation of a Resource Management Policy
4. Development of design components - including preparation of a Draft Plan
5. Plan finalization - including preparation of a Final Plan, and
6. Plan implementation

Preparation and approval of the Terms of Reference is a major element of the plan initiation step of the planning process. A Terms of Reference document for the Brazeau-Pembina Plan was prepared by an interdepartmental planning team and received approval from the Resource Integration Committee in January, 1980. The Terms of Reference presents a description of the planning area, the purpose of the plan, major resource management concerns and issues and a brief explanation of the planning process.

Preparation of the Terms of Reference was followed by the initiation of data collection and analysis, which was an on-going activity throughout the development of the plan. The resource management agencies collected and analysed data in the categories of present use, demand, potential and capability for a wide variety of resources. This information was used extensively in the development of resource management objectives and guidelines and in the resolution of identified conflicts.

Policy formulation was the next step in the planning process. A Resource Management Policy for the Brazeau-Pembina Plan was developed by the planning team and approved by the Resource Integration Committee in August, 1982. The Resource Management Policy contains a description of the planning area, a review of the policy and planning context, a discussion of the policy formulation step, a statement of broad and specific resource management objectives and a description of the revised Eastern Slopes Policy zoning. The Resource Management Policy is an interim document which provided direction for the development of a Draft Plan.

The next step in the planning process was the development of design components of the plan. Design components are resource management guidelines which direct action toward achieving stated resource management objectives. The Draft Plan consists of a compilation and synthesis of the planning products which had been produced to date as well as the design components.

The Draft Plan was approved by a number of interdepartmental provincial government committees and became the Final Plan when it was endorsed by the Economic Planning Committee of cabinet on April 8, 1986.

3.3 Participants in the Planning Process

A planning team approach is used in the development of integrated resource plans. The planning team consisted of representatives from government agencies having major responsibilities or interests in resource management in the Brazeau-Pembina Planning Area plus a team co-ordinator who was responsible for the overall co-ordination of plan development. The Brazeau-Pembina planning team was composed of representatives of the following divisions of the Alberta Departments of Energy and Natural Resources, and Forestry:

1. Mineral Resources Division
2. Alberta Forest Service
3. Fish and Wildlife Division
4. Public Lands Division
5. Resource Evaluation and Planning Division

A representative of the Resource Evaluation Branch of the Resource Evaluation and Planning Division has completed an ecological land classification study for the Brazeau-Pembina Planning Area and provided ecological advice to the planning team, as required.

Designated consultants provided inputs to the planning team at strategic points in the planning process. Consultants to the team included representatives from Alberta government agencies, local authorities and provincial public interest groups.

Representatives of the following Alberta government departments were consultants to the planning team:

1. Agriculture
2. Environment
3. Culture
4. Municipal Affairs
5. Recreation and Parks
6. Tourism
7. Transportation

Local authorities who provided consultative input were the Red Deer Regional Planning Commission, Yellowhead Regional Planning Commission, Municipal District of Clearwater No. 99, Improvement District No. 14 and the County of Parkland.

The members of the Legislative Assembly for Rocky Mountain House, Edson and Drayton Valley also provided consultative input.

A public involvement program was conducted during development of the plan to provide the public with information and opportunities to comment on planning products. Representatives of the following public interest groups submitted comments at various stages of plan preparation.

1. Alberta Canoe Association
2. Alberta Fish and Game Association
3. Alberta Forest Products Association
4. Alberta Snowmobile Association
5. Alberta Wilderness Association
6. Canadian Motorcycle Association
7. Canadian Petroleum Association/Independent Petroleum Association of Canada
8. Canadian Wolf Defenders
9. Coal Association of Canada
10. Drayton Valley Motorcycle Club
11. Pembina Institute for Appropriate Development
12. Sherwood Park Snowmobile Association
13. Western Stock Growers Association

In addition to the public interest groups, numerous representatives of resource based companies and individuals with an interest in the area provided comments on the plan. A summary of public comments on the March 1985 draft of the Brazeau-Pembina plan is presented in a separate report.

4. RESOURCE MANAGEMENT CONTEXT

Resource management activities in the Brazeau-Pembina Planning Area are guided by numerous government directives including legislation, regulations and policies. These directions for resource management were considered in the development of the Brazeau-Pembina Integrated Resource Plan.

4.1 Legislation and Associated Directives

Various provincial government agencies administer a range of legislation and associated regulations to manage resources throughout Alberta, including those within the Brazeau-Pembina Planning Area. In addition to legislation and regulations, there are also governmental directives, such as orders-in-council and ministerial orders, which affect resource management activities.

Approximately the western quarter of the Brazeau-Pembina Planning Area is within the Rocky Mountain Forest Reserve. The forest reserve was formally established by the Forest Reserves Act (1964) to provide for the conservation of forests and the maintenance of conditions favorable to an optimum water supply.

The entire Brazeau-Pembina Planning Area is in the Green Area which was established by order-in-council in 1948. The Green Area contains lands which are not available for settlement or agricultural development other than grazing. In the adjacent White Area, suitable Crown land may be made available for settlement or agricultural development. Major realignment of the Green Area/White Area boundary generally occurs through development of an integrated resource management plan. Minor realignment of the boundary occurs on an ongoing basis through negotiation among involved government agencies.

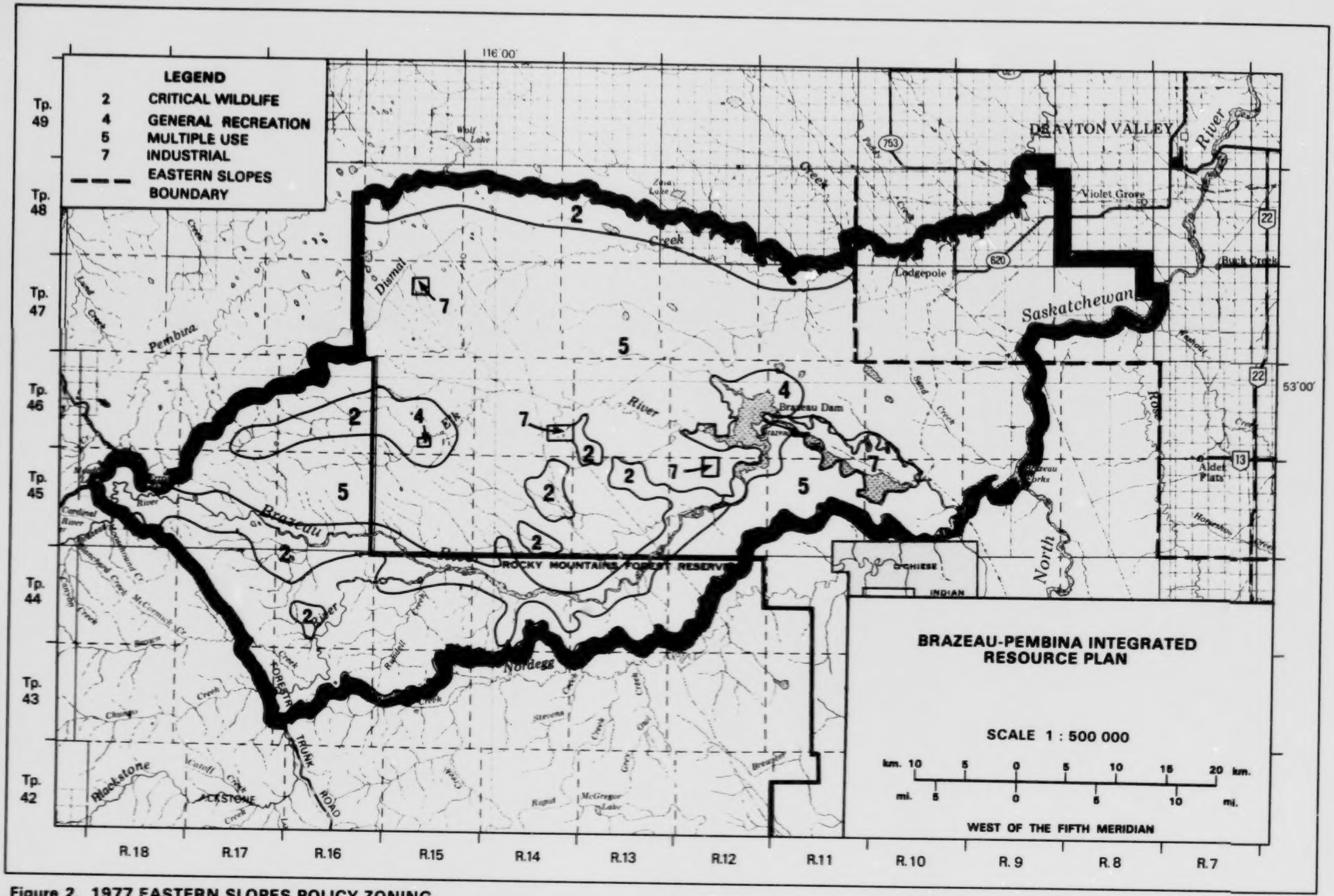
4.2 A Policy for Resource Management of the Eastern Slopes

A Policy for Resource Management of the Eastern Slopes - Revised 1984 (Eastern Slopes Policy) provides direction for integrated resource management and planning for the entire Eastern Slopes Region, including the Brazeau-Pembina Planning Area. The document is split into a policy component and a regional plan.

The policy section identifies provincial government intentions for the area including opportunities and priorities for resource management. Watershed management and the provision of benefits from recreation and tourism are high priorities. Other priorities are maintenance of the unique character of the Eastern Slopes, resource management which is consistent with principles of conservation and environmental protection, management of renewable resources in the long term, integrated resource planning and public involvement.

The regional plan for the Eastern Slopes provides more specific resource management direction in the form of regional resource management objectives, land use zoning and resource management guidelines. Objectives are provided for 10 resource sectors and eight regional land use zones are used to designate areas for varying degrees of protection, resource management and development. The zones are: 1) Prime Protection, 2) Critical Wildlife, 3) Special Use, 4) General Recreation, 5) Multiple Use, 6) Agriculture, 7) Industrial, and 8) Facility. The Eastern Slopes Policy regional zoning for the Brazeau-Pembina Planning Area is presented in Figure 2. The regional plan also contains a Table of Compatible Activities (Table 1) which categorizes representative resource activities according to their compatibility with the intent of each land use zone. The Brazeau-Pembina subregional plan provides more specific resource management direction than the Eastern Slopes Policy and the sub-regional zoning in the plan takes precedence over the regional zoning.

The Brazeau-Pembina Plan utilizes the zoning categories and the table of compatible activities from the 1984 Eastern Slopes Policy to provide more detailed resource management direction. The general intents of the zones, as interpreted by the planning team are presented in Table 2. The Eastern Slopes Policy zoning boundaries were modified during the development of the plan and the revised zoning configuration is presented on a map of the planning area (map pocket). Specific criteria, which were used to designate Critical Wildlife zones, are presented in Appendix 1. Rather than creating an entirely new zoning scheme for the small portion of the planning area which is outside the Eastern Slopes Policy boundary, the Eastern Slopes Zoning categories were used. Zoning does not apply to privately owned land.


LEGEND
2 CRITICAL WILDLIFE
4 GENERAL RECREATION
5 MULTIPLE USE
7 INDUSTRIAL
EASTERN SLOPES BOUNDARY
BRAZEAU-PEMBINA INTEGRATED RESOURCE PLAN
SCALE 1 : 500 000
km. 10 5 0 5 10 15 20 km.
mi. 5 0 5 10 mi.
WEST OF THE FIFTH MERIDIAN
116°00'
53°00'
Tp. 49
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R.8
R.7
DRAYTON VALLEY
Violet Grove
Lodgepole
Buck Creek
Alder Flats
Saskatchewan
North
River
Brazeau Dam
Brazeau Forks
Nordegg
Brazeau
Pembina
Dismal
Elk
Wolf Lake
Rose
Sand Creek
Cardinal River
Blackstone
FORESTRY TRUNK ROAD
ROCKY MOUNTAINS FOREST RESERVE
O'CHIESE INDIAN
McGregor Lake
753
620
22
13

Figure 2. 1977 EASTERN SLOPES POLICY ZONING

TABLE 1 COMPATIBLE ACTIVITIES BY LAND USE ZONE

ZONE ACTIVITY	1 PRIME PROTECTION	2 CRITICAL WILDLIFE	3 SPECIAL USE	4 GENERAL RECREATION	5 MULTIPLE USE	6 AGRICULTURE	7 INDUSTRIAL	8 FACILITY
Non-motorized recreation	■	■	▨	■	■	■	▨	■
Fishing	■	■	▨	■	■	■	▨	■
Hunting	■	■	▨	▨	■	■	▨	☐
Scientific study	■	▨	▨	▨	■	■	■	■
Trapping	■	▨	▨	▨	■	■	☐	☐
Trails, non-motorized	▨	▨	▨	■	■	■	▨	■
Transportation & utility corridors	▨	▨	▨	▨	■	■	■	■
Primitive camping	▨	▨	▨	■	■	■	☐	☐
Intensive recreation	▨	☐	▨	■	■	▨	▨	■
Off-highway vehicle activity	☐	▨	▨	▨	■	■	■	■
Logging	☐	▨	▨	▨	■	■	■	▨
Domestic grazing	☐	▨	▨	▨	■	■	☐	▨
Petroleum and natural gas exploration & development	☐	▨	▨	▨	■	■	■	▨
Coal exploration & development	☐	▨	▨	▨	■	■	■	☐
Mineral exploration & development	☐	▨	▨	▨	■	■	■	☐
Serviced camping	☐	▨	▨	■	■	▨	▨	■
Commercial development	☐	☐	▨	▨	▨	▨	▨	■
Industrial development	☐	☐	▨	☐	■	▨	■	▨
Residential subdivisions	☐	☐	▨	▨	▨	■	▨	■
Cultivation	☐	☐	▨	☐	▨	■	▨	▨

■ Compatible Use — Uses that are considered to be compatible with the intent of a land use zone under normal guidelines and land use regulations.

▨ Permitted Use — Uses that may be compatible with the intent of a land use zone under certain circumstances and under special conditions and controls where necessary.

☐ Not Permitted Use — Uses that are not compatible with the intent or capabilities of a land use zone.

These activities are only representative of the range of activities that occur in the Eastern Slopes. For these and any other activities, the possibility of whether they should or should not take place in a particular area must always be measured against the fundamental management intentions for that zone. Since economic opportunities are not all known in advance, site-specific developments may be considered in any zone.

TABLE 2
PLANNING TEAM INTERPRETATION OF THE INTENTS OF THE EASTERN SLOPES POLICY ZONES

#	Zone	INTENT OF THE ZONE
*1	Prime Protection	To preserve environmentally sensitive terrain and valuable esthetic resources.
2	Critical Wildlife	To protect specific fish and wildlife populations by protecting aquatic and terrestrial habitat that is crucial to the maintenance of those populations.
*3	Special Use	To recognize historical resources, scientific research areas and lands which have unique management requirements or legislative status or which cannot be accommodated elsewhere.
4	General Recreation	To retain a variety of natural environments to serve as a focus for a wide range of outdoor recreational activities.
5	Multiple Use	To provide for the management and development of the full range of available resources, while meeting long-term objectives for watershed management and environmental protection.
*6	Agriculture	To designate lands which are currently utilized or are considered suitable for cultivation or improved grazing.
7	Industrial	To recognize existing or approved industrial operations.
8	Facility	To recognize existing or approved settlement and commercial development areas.

* Zone was not applied in the Brazeau-Pembina Planning Area.

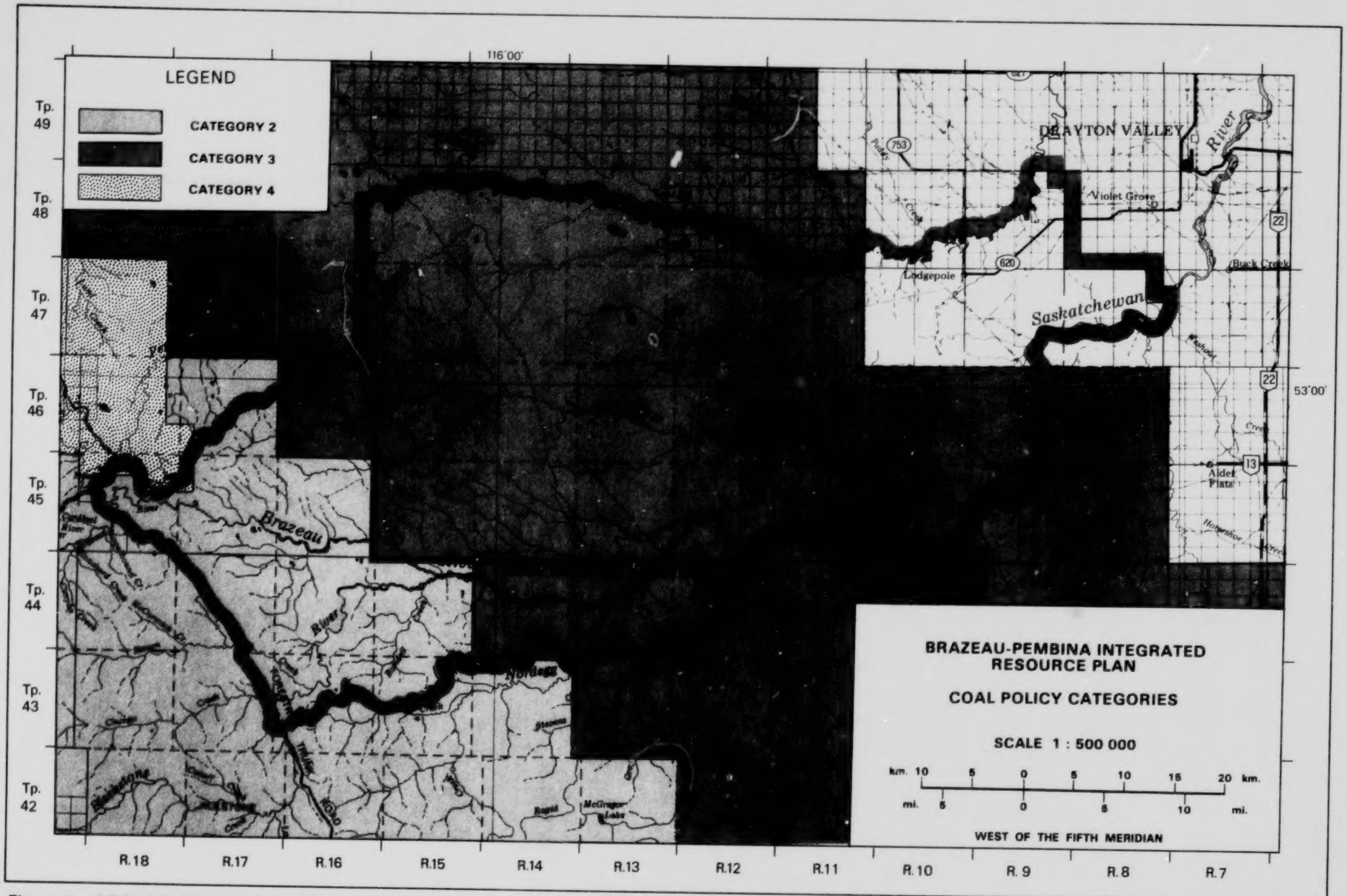
4.3 A Coal Development Policy for Alberta

A Coal Development Policy for Alberta (Coal Policy) released in 1976, guides the exploration and development of coal resources throughout the province. It classifies the province into four categories of suitability for different levels of exploration and development (Figure 3). The western portion of the planning area was zoned as Category 2, where "limited exploration is desirable and may be permitted under strict control". Commercial development by surface mining "will not normally be considered at the present time" because "the preferred land or resource use remains to be determined". The eastern portion of the planning area was zoned as Category 3, where coal "exploration is desirable and may be permitted under appropriate control" and commercial development "will be approved subject to proper assurances respecting protection of the environment and reclamation of disturbed lands". The policy is currently being revised but the revision is not yet approved. The revised policy is expected to rely primarily upon the integrated resource planning system to provide direction on the suitability of coal exploration and development activities, considered in the context of all land and resource uses on public land. The plan anticipates these changes in the Coal Policy and thus contains objectives and guidelines for coal activities, generally without relying upon the categorization in the present policy.

Until the revised policy is approved, the 1976 policy will continue to apply. Where the Coal Policy is more restrictive with regard to exploration and development than this plan, administrative procedures relating to exploration, development and leasing will take direction from the Coal Policy.

4.4 Fish and Wildlife Policy for Alberta

The Fish and Wildlife Policy for Alberta was approved by cabinet and released in October 1982. This policy provides general direction regarding outdoor recreation, wildlife resources, fisheries resources and regulatory aspects of fish and wildlife use. The Fish and Wildlife Policy calls for preparation of comprehensive ten-year fish and wildlife resource plans. Meeting the objectives stated in this plan, will achieve a part of the overall fish and wildlife projected demand targets which are identified in the fish and wildlife outdoor recreation plan.


LEGEND
CATEGORY 2
CATEGORY 3
CATEGORY 4
BRAZEAU-PEMBINA INTEGRATED RESOURCE PLAN
COAL POLICY CATEGORIES
SCALE 1 : 500 000
km. 10 5 0 5 10 15 20 km.
mi. 5 0 5 10 mi.
WEST OF THE FIFTH MERIDIAN
116°00'
53°00'
Tp. 49
Tp. 48
Tp. 47
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Tp. 43
Tp. 42
R.18
R.17
R.16
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R.13
R.12
R.11
R.10
R.9
R.8
R.7
DRAYTON VALLEY
River
Violet Grove
Saskatchewan
Lodgepole
Buck Creek
Alder Flats
Brazeau
River
Nordegg
753
620
22
13

Figure 3. COAL POLICY CATEGORIES

4.5 Rocky-Clearwater Management Overview

The Rocky-Clearwater Management Overview (ENR Report No. 122) was approved by the Resource Integration Committee in May, 1980. The appropriate development strategy or theme for the Brazeau-Pembina Plan, as stated in the Overview, is a "multiple use emphasis whereby use of the area for a wide range of activities will be optimized and existing/potential conflicts will be minimized." The Overview recommends a focus on resource utilization for the Brazeau-Pembina Plan and supports the long term resource management priority of renewable resources over non-renewable resources as stated in the Eastern Slopes Policy.

4.6 Brazeau Timber Development Area

The Brazeau Timber Development Area (TDA) overlays approximately 40 per cent of the Brazeau-Pembina Planning Area. The remainder of the TDA is within the Nordegg-Red Deer River and the Rocky-North Saskatchewan planning areas (Figure 4). The Brazeau TDA is one of the last large economically accessible areas in Canada with surplus timber volume, which is available for major development. The proximity of the area to major markets is an attractive feature. The uncommitted timber resources in this area are some of the best in Alberta and a large land base is required to ensure the economic viability of the forest industry in the area. Public hearings for the Brazeau Timber Development Area were held in August of 1982.

A forest management agreement between the provincial government and Pelican Spruce Mills Limited for the O'Chiese Block of the TDA was signed in December 1985. Timber from the area will be used to produce oriented strand board in a mill in Drayton Valley.

4.7 Designated Vehicle Routes

The concept of designated vehicle routes involves selection of a portion of the available access routes in an area for use by motorized recreational vehicles and closure of the remaining routes to such vehicles. The concept applies only to recreational vehicles and not to commercial or industrial vehicle use. Routes are selected to ensure adequate access is maintained throughout the area.

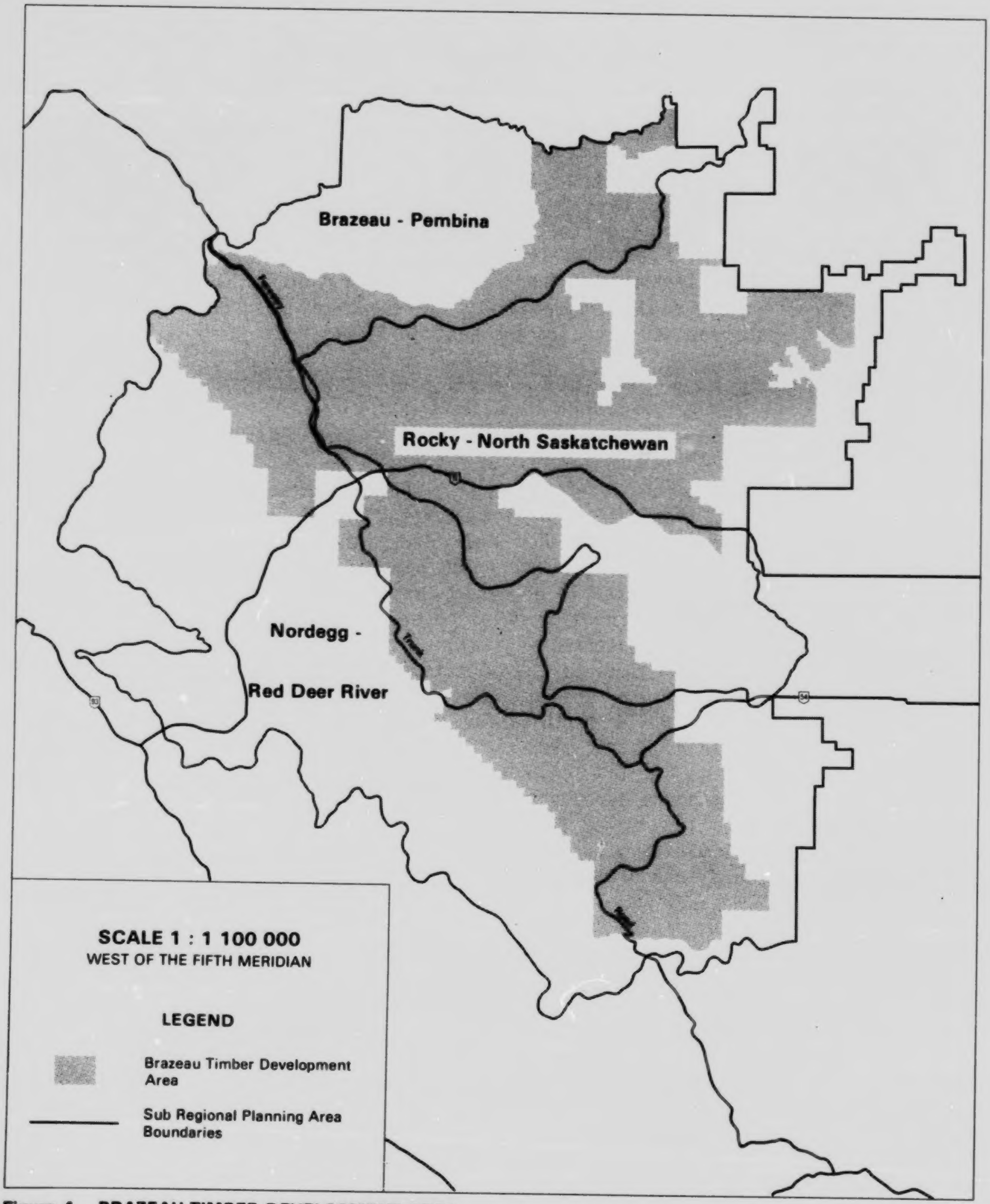
Brazeau - Pembina
Forestry
Rocky - North Saskatchewan
11
Nordegg -
Red Deer River
Trunk
93
54
Trunk
SCALE 1 : 1 100 000
WEST OF THE FIFTH MERIDIAN
LEGEND
Brazeau Timber Development Area
Sub Regional Planning Area Boundaries

Figure 4 BRAZEAU TIMBER DEVELOPMENT AREA

The designated vehicle routes approach has been identified as a possible management response to a number of problems associated with recreational vehicle use in Alberta, particularly in the Eastern Slopes region. Erosion at stream crossings, damage to reclamation projects, disturbance of wildlife and conflicts between different recreational and between recreational and industrial users are examples of the problems associated with recreational vehicle use which designated vehicle routes are intended to address. The need to manage motorized recreational vehicle use is apparent and a pilot project to determine the value of designated vehicle routes as a management technique is proposed for the Brazeau-Pembina planning area. The Brazeau-Pembina area is ideal for the pilot project because of the extensive network of access routes (i.e. trails, seismic lines and roads) developed to serve the needs of the petroleum and natural gas industry.

The pilot project will test the effectiveness of the designated vehicle routes approach, work out the details and demonstrate to the public how the concept will work. The pilot project may take several years to complete. Public involvement will be a component of the pilot project with the public involved in developing the approach and selection of routes. Depending on the results of the project, designated vehicle routes may be applied on a wider scale.

5. RESOURCE MANAGEMENT CONCERNS AND ISSUES

During development of the Brazeau-Pembina Draft Plan, the planning team attempted to address the following general resource management concerns and issues which were identified in the Terms of Reference:

1. Protection and use of fish and wildlife populations and habitat,
2. Maintenance of a land base for timber production,
3. Identification of areas for improved and unimproved grazing,
4. Restrictions on petroleum and natural gas exploration and development,
5. Various aspects of recreational use of the planning area,
6. Access development,
7. Protection of water and watershed resources, and
8. Protection of historical resources.

The planning team used an integrated resource planning approach to address and resolve these as well as additional resource management concerns which were identified during the planning process.

6. RESOURCE MANAGEMENT STRATEGY FOR THE BRAZEAU-PEMBINA PLANNING AREA

The resource management strategy for the Brazeau-Pembina Planning Area consists of a statement of primary intent for resource management within the planning area plus a set of broad resource management objectives and guidelines for the planning area. A statement of primary intent indicates the resource management emphasis for an area and involves the selection of one or several objectives from the complete set of resource management objectives which has been identified for the area. Development of the primary intent statement is based on an assessment of the significance of particular resource management objectives within the area in question. A resource management objective can be defined as a statement of a desirable condition or state for a resource or resource use which can be achieved through management action. A resource management guideline is a statement of direction which guides resource use and management action toward achievement of resource management objectives.

The primary intent for resource management within the Brazeau-Pembina Planning Area is:

> To allow for use of the full range of available resources while recognizing watershed and other environmental considerations.

The second component of the resource management strategy for the Brazeau-Pembina Planning Area is the following set of resource management objectives and guidelines, which apply to the entire planning area. No priority is intended or implied by the sequence of the objectives and guidelines.

6.1 Water and Watershed Resources

Discussion

The major drainages in the Brazeau-Pembina Planning Area are portions of the Brazeau River drainage (North Saskatchewan River basin) and the Pembina River drainage (Athabasca River basin).

The Brazeau Reservoir is within the planning area and has a considerable effect on the timing and quality of water leaving the area via the Brazeau River.

The planning area produces moderate quantities of water of fair quality and watershed sensitivity is generally moderate to high. Land use activity has been intensive throughout the area. High levels of oil and gas exploration and development and localized timber harvesting are present. Most of this development has occurred within the last 15 years and there have been numerous associated erosion and water quality problems. Increased development of oil, gas and timber resources is expected in the near future. The potential impact of this development on the watershed is a concern.

Broad Management Objectives

1. To maintain and/or improve the quality, quantity and flow regime of water resources. Major components of this objective are:

   (a) to improve water quality, quantity and timing in areas where these water parameters have been negatively affected by land use activities;
   (b) to preserve the inherent productivity of the land through land management practices which provide maximum protection of the soil;
   (c) to maintain background streamflow and suspended sediment levels;
   (d) to maintain the integrity of natural stream channels;
   (e) to maintain adequate water volumes in major rivers to meet the needs of downstream users.

2. To provide for the present and future use of water resources by onstream and downstream users including hydro-electric power developments, domestic users, industrial users, recreational users and fish and wildlife populations.

Broad Management Guidelines

1. Watershed monitoring will occur within the planning area in order to gather baseline data on water quality, quantity and flow regime for use in developing standards and detecting changes in water parameters. Background streamflow and suspended sediment levels will be established for streams in representative basins within the planning area.

2. Land use activities which cause water quality, quantity or timing to vary will be minimized by applying management techniques that will limit such variances. Erosion, which is associated with surface disturbance and vegetation removal, will be minimized, particularly in proximity to water courses. Seasonal restrictions on land use activities will be considered in poorly drained and highly erodible areas.

3. Downstream flooding will be minimized by management of land use activities and by regulation of the release of water by hydro-electric developments.

4. Greater co-ordination and management of linear developments is required to reduce problems with erosion and water quality.

5. More intensive land use management is required within heavily used portions of this planning area. A review of current watershed problems and existing land use activities is being undertaken.

6. The level of vegetation manipulation, which would provide an acceptable balance between water yield and maintaining water quality, will be determined through monitoring and watershed modelling.

6.2 Mineral Resources

Discussion

The Brazeau-Pembina Planning Area is underlain by relatively undisturbed Paleozoic and Mesozoic sediments of the interior plains. These sedimentary formations thicken as one moves westward and become severely folded and faulted in the foothills in the southwest portion of the planning area.

Petroleum and Natural Gas - There are portions of eight designated petroleum and natural gas fields within the Brazeau-Pembina Planning Area. These are the Blackstone, Brazeau River, Hanlan, Peco, Cordell, Pembina, Columbia and Voyager fields. At the end of 1984, approximate petroleum reserves within the planning area were 15 million m^3 and natural gas reserves were 38 billion m^3. Annual petroleum production is about 800 000 m^3 and annual production of natural gas is approximately 1 billion m^3.

A large amount of sulphur occurs as hydrogen sulphide with the natural gas in the Blackstone, Brazeau River and Hanlan gas fields. Both reserves and production of sulphur are provincially significant. Two gas processing plants in the area produce elemental sulphur for market. There are five gas wells containing over five per cent hydrogen sulphide. One well has more than 20 per cent.

Over 50 per cent of the planning area is covered by designated petroleum and natural gas fields and 90 per cent of the area is covered by oil and gas dispositions. There are more than 400 producing and about 75 capped wells for a total of about 500 wells within the planning area. There are also five gas processing plants and 210 km of major oil and gas pipelines.

Coal - The Brazeau-Pembina planning area has extensive areas underlain by the coal bearing Brazeau and Paskapoo Formations. The very small amount of exploration that has taken place has been concentrated in the western area near the Chungo Creek deposit and along the southeastern continuation of the major coal trends of the southern Coal Branch. This recent exploration has proven the existence of important thermal coal occurrences and has resulted in extension of the Coalspur coal field into the western tip of the planning area. Based upon limited exploration, coal reserves in the planning area are estimated at 15 million tonnes. Further exploration may greatly increase this figure.

Broad Management Objectives

1. To provide opportunities for industry to define the extent of and develop or produce mineral resources where reserves have been proven.

2. To provide opportunities for mineral exploration in previously unexplored areas and formations.

Broad Management Guidelines

1. Reclamation of land use disturbances associated with mineral resources exploration and development will be expedited to reduce erosion and sedimentation.

2. Only underground coal mining is encouraged in the Critical Wild life and General Recreation zones. However, where not other

wise prohibited in this plan, surface mining or the location of surface facilities associated with coal mining in these zones may be considered on a project-specific basis in response to a Preliminary Disclosure.

6.3 Timber Resources

Discussion

The timber resource in the Brazeau-Pembina Planning Area is strategically important in helping to achieve the provincial goal of industrial and associated economic diversification for the following reasons. A high percentage of the planning area is productive forest land and transportation facilities in the area are largely developed. The area is also close to a reliable work force.

All of the R4 Forest Management Unit (FMU) and a portion of the R3 FMU are within the Brazeau-Pembina Planning Area. The R3 and R4 FMUs are managed on a sustained yield basis to provide an optimum annual allowable cut (AAC). At present in the R4 FMU there are six renewable coniferous quotas held by the forest industry and two Miscellaneous Timber Use Areas established to meet the requirements of local operators and private individuals. These commitments total approximately 21 per cent of the total AAC, leaving the remainder unallocated. The eastern half of the R4 FMU falls within the O'Chiese block of the Brazeau TDA. The remainder of the R4 FMU falls within an area identified for potential future quota sales. The age class distribution for R4 consists of equal amounts of immature and mature to overmature volumes. The potential for timber utilization is high. Approximately 19 per cent of the deciduous AAC is allocated under Deciduous Timber Allocations. With the allocation of the deciduous timber in the O'Chiese block, the deciduous AAC will be fully committed.

Approximately one-third of the R3 FMU falls within the planning area. The R3 FMU contains three coniferous quotas, which have been allocated approximately 13 per cent of the AAC. The situation is similar to that in the R4 FMU where there is also an available AAC. Approximately three-quarters of the volume is mature to over-mature and should be managed through increased harvesting to reduce the risk of insect outbreaks, fires and other catastrophes. Increased utilization of timber resources will be achieved through the Brazeau TDA (Nordegg block) and the potential quota sales area. The Brazeau River is the dividing line between the quota sale area and the Nordegg block in R3 to the south.

Broad Management Objectives

1. To provide maximum utilization of the potential sustainable AAC of both coniferous and deciduous wood fibre.
2. To maintain a forest environment of high quality.
3. To provide an optimum AAC of timber resources on a sustained yield basis in order to meet present commitments and future requirements of quota and deciduous timber allocation holders, local timber operators and private individuals and the Brazeau Timber Development Area.
4. To provide a forest land base which will sustain a major forest industrial base for the region over the long term.
5. To protect the forest from damage or destruction by fire, insects, disease or other causes.
6. To continue reclamation of industrial disturbances where industrial dispositions have expired.

Broad Management Guidelines

1. Existing access will be utilized by the forest industry, wherever possible.
2. Continued and increased productivity of lands dedicated to sustained yield timber production will be ensured through use of intensive forest management techniques.
3. The land base which is dedicated to sustained yield timber production will consist of land within the Green Area which is in Eastern Slopes Policy Critical Wildlife, General Recreation and Multiple Use zones, with the exception of intensively developed recreation sites.
4. Reclamation of land use disturbances associated with timber harvesting will be expedited to reduce erosion and sedimentation.
5. All cutover areas will be reforested in accordance with established reforestation regulations and policy, except where otherwise noted in this plan.

6.4 Wildlife Resources

Discussion

The Brazeau-Pembina Planning Area supports a variety of wildlife species. Moose, elk, white-tailed and mule deer, black bear, wolves, coyotes and cougar are the larger species which are found in the planning area. The area supports a range of furbearers including beaver, muskrat, red squirrel, mink, lynx and marten. A variety of small mammals and birds are also present. The most interesting and sensitive wildlife in the planning area are nesting colonies of herons and ospreys on the Brazeau Reservoir.

The predominant habitat type in the Brazeau-Pembina Planning Area is coniferous forest. Aspen and mixedwood stands occur in the eastern portion of the planning area and muskeg areas are common. Most of the topographic variety in the planning area is associated with streams and rivers and the riparian areas along these water courses support the greatest diversity of wildlife species.

The major consumptive uses of wildlife in the area are trapping of furbearers and hunting of moose, elk, white-tailed and mule deer, black bear and grouse. The planning area is near the O'Chiese and Sunchild Indian reserves and hunting by Treaty Indians is a significant activity. Non-consumptive use of wildlife, including viewing and photography, is centred on the Brazeau Dam and the Elk River campground. Most non-consumptive use of wildlife is incidental to camping and fishing activities. The rapid increase in available access has been a major contributing factor to the decline of wildlife populations to below desired levels in portions of the planning area.

Broad Management Objectives

1. To maintain and/or increase natural wildlife populations. This would include maintaining or increasing populations of ungulates, furbearers, birds and rare wildlife species. More specific components of this objective are:

   (a) to increase elk populations;
   (b) to increase populations of moose and deer;
   (c) to maintain viable populations of wolves, bear and semi-aquatic furbearers;
   (d) to maintain, increase or introduce scarce or absent species, such as osprey and river otter, when stocks become available.

2. To maintain and/or increase the quality and quantity of suitable aquatic and terrestrial habitat required to support wildlife populations at optimal densities. Components of this objective are:

   (a) to protect habitat areas and migratory routes which are critical for the survival of specific wildlife populations. Specific habitat areas to be protected include all natural mineral licks and sites required by rare wildlife species;
   (b) to enhance or create wildlife habitat in appropriate locations;
   (c) to maintain or increase the total annual production of forbs and deciduous species for the production of wildlife;
   (d) to maintain an adequate mosaic of habitat types to ensure the survival of the entire range of wildlife species which are found in the planning area.

3. To maintain and/or increase opportunities for recreational, domestic and commercial use of wildlife resources. Components of this objective are:

   (a) to maintain or increase the level of hunting;
   (b) to maintain the existing level of commercial trapping;
   (c) to increase opportunities for non-consumptive use of wildlife.

Broad Management Guidelines

1. Disturbance of wildlife populations during sensitive time periods will be minimized.

2. Hunting and trapping regulations will be regularly reviewed in relation to hunter use, harvest levels and the condition of game populations, to ensure the long-term survival of naturally reproducing game populations.

3. Fish and Wildlife Division will continue to review and provide input to government referrals on land use activities with potential for impacts on wildlife resources. Emphasis will be placed on avoiding unnecessary negative impacts on wildlife and on working co-operatively with resource users to take advantage of opportunities for wildlife habitat enhancement.

4. Harassment and habitat destruction around colonial nesting sites, aeries, den sites and mineral licks will be minimized.

5. Disturbance of wildlife will be reduced by managing access (e.g., physical control, designated vehicle routes) and by controlling hunting activities.

6.5 Fisheries Resources

Discussion

Lakes and streams in the Brazeau-Pembina Planning Area contain a variety of sportfish including mountain whitefish, rainbow trout, bull trout, arctic grayling, northern pike and walleye. Most of the smaller streams in the planning area have low gradients and are slow moving. Beaver dams are common on these smaller creeks. High levels of suspended sediments and low or fluctuating water levels limit the productivity of many streams for fisheries. The larger rivers, such as the Brazeau and the Pembina, are faster flowing and provide better fish habitat. Fish production in most lakes is limited by shallow depths and low dissolved oxygen levels.

Fish stocking attempts within the planning area have been limited to the introduction of rainbow trout and whisco (hybrid whitefish and cisco) into two borrow pits near the Brazeau Dam Power Canal and the stocking of cutthroat trout in the Blackstone River. The potential for stocking lakes is considered to be relatively limited although pike or perch stocking is a possibility in a few lakes.

Fisheries resources within inaccessible portions of the planning area are considered to be underutilized although accessible areas receive significant angling pressure and some have suffered overharvest in the past. Fishing for northern pike in the Brazeau Reservoir and Power Canal is a popular activity. Many inaccessible fish populations in the area are susceptible to angling pressure and could be drastically reduced if access were improved.

Broad Management Objectives

1. To maintain and/or increase natural fish populations and establish new populations through stocking of fish in suitable locations.

2. To maintain and/or increase the quality and quantity of aquatic habitat required to support fish populations at optimal densities. Components of this objective are:

(a) to protect habitat and migratory routes which are critical for the survival of specific fish populations. Specific habitat areas to be protected include spawning, overwintering and rearing areas;
(b) to protect lakes with fish stocking potential;
(c) to enhance or create sportfish habitat in appropriate locations.

3. To provide a variety of angling opportunities for recreational use of fisheries resources. Components of this objective are:

(a) to provide a diversity of sportfish species, types of angling and locations for angling;
(b) to meet a service standard that would provide a success rate of 0.3 fish per angler hour for naturally reproducing fish populations and 0.5 fish per angler hour for productive, stocked lakes.

Broad Management Guidelines

1. Sportfish populations and habitat will be protected by minimizing contact between resource developments and streams, maintaining water quality and reclamation of disturbed sites.

2. Angling regulations will be regularly reviewed in relation to angler use, harvest levels and the conditions of fish populations, to ensure the long-term survival of naturally reproducing resident sportfish populations.

3. Angler surveys on lakes and streams will be completed by 1995 to measure recreational use and fish harvest. Subsequent surveys will be conducted at 10-year intervals.

4. Fish and Wildlife Division will continue to review and provide input to government referrals on land use activities which have potential for negative impact on fisheries resources.

5. Appropriate agencies (e.g., Recreation and Parks, Alberta Forest Service) will be consulted prior to initiation of fish stocking programs which may create demands for recreational facility development.

6. Adequate public access to fisheries will be maintained.

6.6 Recreational Resources

Discussion

The Brazeau-Pembina Planning Area supports a relatively low level of outdoor recreational use. This use is primarily dispersed and extensive rather than intensive. The present access and land base facilitate dispersed activities such as hunting, fishing and snowmobiling. The exception is the Brazeau Reservoir which provides a focal point for intensive recreational use within the planning area. Until access into the area improves and population levels in the adjacent area increase, the Brazeau-Pembina Planning Area will have a low priority for further recreational development.

Broad Management Objectives

1. To maintain and/or increase the quantity and quality of recreational resources. Components of this objective are:
    (a) to increase the supply of outdoor recreational opportunities;
    (b) to protect areas with high recreational potential for future recreational development;
    (c) to consider the disposition of Crown lands for commercial and private sector recreational and tourism facility development.
2. To continue and to promote formal and informal use of extensive land and water-based recreational opportunities.
3. To encourage private sector development of recreational resources.

Broad Management Guidelines

1. The Brazeau-Pembina Planning Area will have the lowest priority for further recreational facility development within the Rocky-Clearwater Forest. Additional recreational opportunities may be provided more expeditiously, if deemed necessary.
2. Upgrading and maintenance of existing recreational facilities by the Alberta Forest Service will continue.

3. The Fish and Wildlife Division will be consulted during the planning of those recreational developments which may result in increased recreational angling pressure or damage to sensitive or unique fisheries populations or habitat.

4. The size and location of campsites will be major considerations in determining the acceptability of serviced camping in Critical Wildlife Zones.

6.7 Forage Resources

Discussion

At present, domestic grazing is not a significant activity on public lands within the Brazeau-Pembina Planning Area. The entire planning area is currently in the Green Area. Three leases in the area have a combined carrying capacity of 540 animal unit months (AUMs). Much of the area is unsuitable for unimproved domestic grazing due to poor drainage and soil development, adverse climatic conditions, tree cover and a lack of suitable forage species. The majority of the sites that do have unimproved grazing potential are inaccessible at present and fall within Critical Wildlife-Zone 2. Several smaller areas with unimproved grazing potential have been identified along the eastern edge of the planning area. A relatively large area with improved grazing and cultivation potential has been identified in the eastern portion of the planning area by the Public Lands Division.

Broad Management Objectives

1. To increase the quantity and quality of forage resources.

2. To maintain and/or increase the level of grazing by wildlife and domestic livestock.

3. To monitor and manage escaped and/or abandoned horses.

Broad Management Guidelines

1. The feasibility of increasing current levels of grazing use will be determined.

2. Management techniques which increase the availability and use of the existing forage resource will be considered before clearing land for additional forage production.

3. The level of range management on existing grazing dispositions will be increased to maintain the range in good condition.

4. The Brazeau-Pembina Planning Area will be a low priority within the Rocky-Clearwater Forest for the development of range management plans.

5. Problems with escaped and/or abandoned horses along roads and on rangelands will be minimized by using appropriate management practices.

6.8 Agricultural Resources

Discussion

Agricultural development occurs on approximately 350 ha of patent land in the eastern portion of the planning area. Forage crops and cattle are produced by several mixed farming operations.

Although the entire planning area is in the Green Area, potential for agricultural development has been identified for a block of undeveloped arable land in Township 47, Ranges 8 to 10, west of 5. Part of this block is classified as Class 4 agricultural land by the Canada Land Inventory. The remainder of the block is rated as Class 5 for agriculture because of climatic limitations. The area is suitable for production of perennial forage crops. A detailed evaluation of the arable capability of the area is being done. The proximity of the area to markets, services and amenities will probably result in a high demand for arable land, should such land be identified and released for farm expansion and settlement.

Broad Management Objectives

1. To assess the agricultural capability of selected land in the eastern portion of the planning area.

Broad Management Guidelines

1. No broad management guidelines for agricultural resources have been identified for the planning area. Specific guidelines can be found in Section 7.1.2.8.

6.9 Ecological Resources

Discussion

Ecological resources are unique or representative ecological features or systems which have been identified within the planning area. An ecologically significant area has been identified around a tufa on the upper Brazeau River.

Brazeau Management Objectives

1. To preserve selected unique or representative natural ecosystems or features.

2. To provide for the scientific and educational use of ecological resources.

Broad Management Guideline

1. Appropriate land use reservations or notations will be maintained or applied to protect ecological resources.

6.10 Historical Resources

Discussion

Human use of the Brazeau-Pembina Planning Area has historically focused on the exploitation and development of natural resources.

While few archaeological investigations have been carried out within the planning area, the resulting limited evidence suggests that more archaeological sites exist, particularly near bodies of water. The region is known to have been frequented by groups of hunters for 12 000 years or more and identified sites largely represent the remains of their campsites.

The planning area was part of the hinterland for several fur trading posts which were established near Rocky Mountain House in 1799. In 1808, the North West Company erected a wintering house, known as

Boggy Hall, near the confluence of the North Saskatchewan and Brazeau rivers. Archaeological investigation of this site has not been completed.

Timber harvesting became an important activity in the area around the turn of the century. Logs were shipped to Edmonton from the Buck Lake area as early as the 1870s. Timber dispositions were registered along the lower Brazeau and Nordegg rivers in 1915. Several logging and sawmilling operations had developed in the area by the 1930s. The Carroll brothers of Breton, Alberta, operated a sawmill near the mouth of the Brazeau River during the first half of this century. A few old forestry cabins are the only historical reminders of this period.

Geophysical exploration for petroleum and gas resources began along the Brazeau Thrust about 1940. The highly productive Pembina oil field, near Lodgepole, was discovered in 1953. Commercial gas deposits in the Brazeau-Elk-Shunda B Pool were discovered in 1959.

Calgary Power Ltd. (TransAlta Utilities) began construction of the Brazeau Dam on the Brazeau River in 1961 and the first power generating unit was completed four years later. A second unit was added in 1967.

Broad Management Objectives

1. To protect identified historical resources (historic, prehistoric and palaeontological) from impact associated with development.
2. To provide for scientific, educational and recreational use of historical resources.

Broad Management Guidelines

1. Resource uses, which necessitate surface disturbances, may require Historical Resource Impact Assessments as outlined under Section 33(2) of the Historical Resources Act.
2. The Archaeological Survey of Alberta will participate in the land use referral process to review proposed development projects and to ensure that historical resources are protected.

6.11 Tourism Resources

Discussion

Tourism resources in the Brazeau-Pembina Planning Area are mainly associated with outdoor recreation. Camping, fishing and hunting are significant activities of tourists who visit the area. The Brazeau Dam hydro-electric power generating facility and reservoir are major attractions in the planning area. The potential for development of tours of the generating facility and other industrial operations has been identified. The only commercial tourist operation in the area is a small hotel in Lodgepole. Commercial rafting trips on the Brazeau River have been proposed.

Broad Management Objectives

1. To promote development of parts of the Brazeau-Pembina Planning Area as a year-round travel destination area.
2. To ensure the continuation of existing tourism operations to meet the recreational and social needs of residents and visitors to the area.
3. To provide opportunities for the private sector to participate in developments which cater to the needs of users of the area.
4. To encourage the development of commercial and private sector tourism and recreational facilities on Crown and private land.

Broad Management Guideline

1. No broad management guidelines for tourism resources were identified.

6.12 Surface Material Resources

Discussion

The main surface material resources within the Brazeau-Pembina Planning Area are sand and gravel deposits. Most of the scattered leases for extraction of sand and gravel are located adjacent to major creeks and rivers. At present, known deposits of sand and gravel are adequate to meet demand, although local shortages have developed.

Broad Management Objectives

1. To provide for the orderly exploration and development of surface materials, including sand, gravel, clay and marl, in a manner that is compatible with environmental considerations.

Broad Management Guidelines

1. The Aggregate Inventory Group of the Department of Forestry will identify the location and extent of sand and gravel deposits.

2. Reclamation of land use disturbances associated with exploration and development of surface materials will be expedited to reduce erosion and sedimentation.

6.13 Access

Discussion

Although most of the Brazeau-Pembina Planning Area was inaccessible before the 1960s, access has increased substantially in recent years as a result of oil and gas exploration and development. The Brazeau River valley and the land between the Brazeau and Blackstone rivers are the only portions of the planning area which currently are relatively inaccessible. This situation may change in the near future as oil and gas exploration activity continues in the area.

Eight main roads provide access to the planning area. Secondary road 620 provides access to Lodgepole from Drayton Valley and secondary road 753 links Lodgepole with Highway 16 to the north. The Sunchild road provides access from Lodgepole to the Brazeau Dam and further south to Highway 11. The Sunchild road is being upgraded. A gravel road branches off the Sunchild road and provides access to the Brazeau powerhouse and power canal in the eastern portion of the planning area. Another gravel road provides access from the Sunchild road to the Dome Petroleum gas plant on the Elk River in the central portion of the planning area. The Wolf Lake road runs north from the Dome gas plant road and provides access to the north central portion of the area. The Elk River road links the central portion of the area with the Forestry Trunk Road which forms the western boundary of the planning area. The Elk River road is in poor condition and is being upgraded.

In addition to the main roads, many smaller roads have been developed by the oil and gas industry to service well sites, pipelines and associated facilities. A dense network of seismic lines has also been developed in many parts of the area as part of intensive geophysical exploration programs.

Broad Management Objectives

1. To co-ordinate the development of access in order to minimize negative effects on various resources and users.
2. To meet the access requirements of resource users, where appropriate.

Broad Management Guidelines

1. Resource users will be encouraged to use common access corridors to minimize environmental effects and duplication of effort and expense.
2. A pilot project to evaluate designated vehicle routes as a technique for managing use of motorized recreational vehicles will be developed in the planning area (See Section 4.7).
3. Resource development roads should be built on road allowances where possible.

7. RESOURCE MANAGEMENT AREAS

The Brazeau-Pembina Planning Area was divided into three smaller resource management areas (RMAs) to facilitate the geographic location of resource management objectives. These resource management areas are (see Figure 5): 1) Pembina-North Saskatchewan, 2) Brazeau Reservoir and 3) Upper Brazeau-Dismal.

More specific resource management objectives and guidelines were developed for the individual resource management areas within the context of the resource management strategy (primary intent and broad resource management objectives and guidelines in Section 6) which applies to the entire planning area. The degree of definition or refinement of objectives and guidelines varied among resource management agencies, depending upon factors such as available information and the allocation of manpower and financial resources by each agency.

The geographic location and resource use aspects of the resource management objectives were further refined by using the Eastern Slopes Policy zoning categories and the table of compatible activities (Table 1). Differences between the Eastern Slopes Policy regional zoning (Figure 2) and the zoning configuration presented in the Brazeau-Pembina Plan, are associated with the refinement of resource management objectives on the basis of new and more detailed resource information. The new zoning configuration should allow achievement of stated resource management objectives to a level which is acceptable to the involved agencies.

This section of the document is organized according to the three resource management areas shown in Figure 5. A general description of the RMA, brief resource descriptions, specific resource management objectives and guidelines and the locations of zones for each resource management area are provided.

7.1 Pembina-North Saskatchewan Resource Management Area

7.1.1 General Description

The Pembina-North Saskatchewan RMA is an area of approximately 439 km^2 in the eastern portion of the Brazeau-Pembina Planning Area

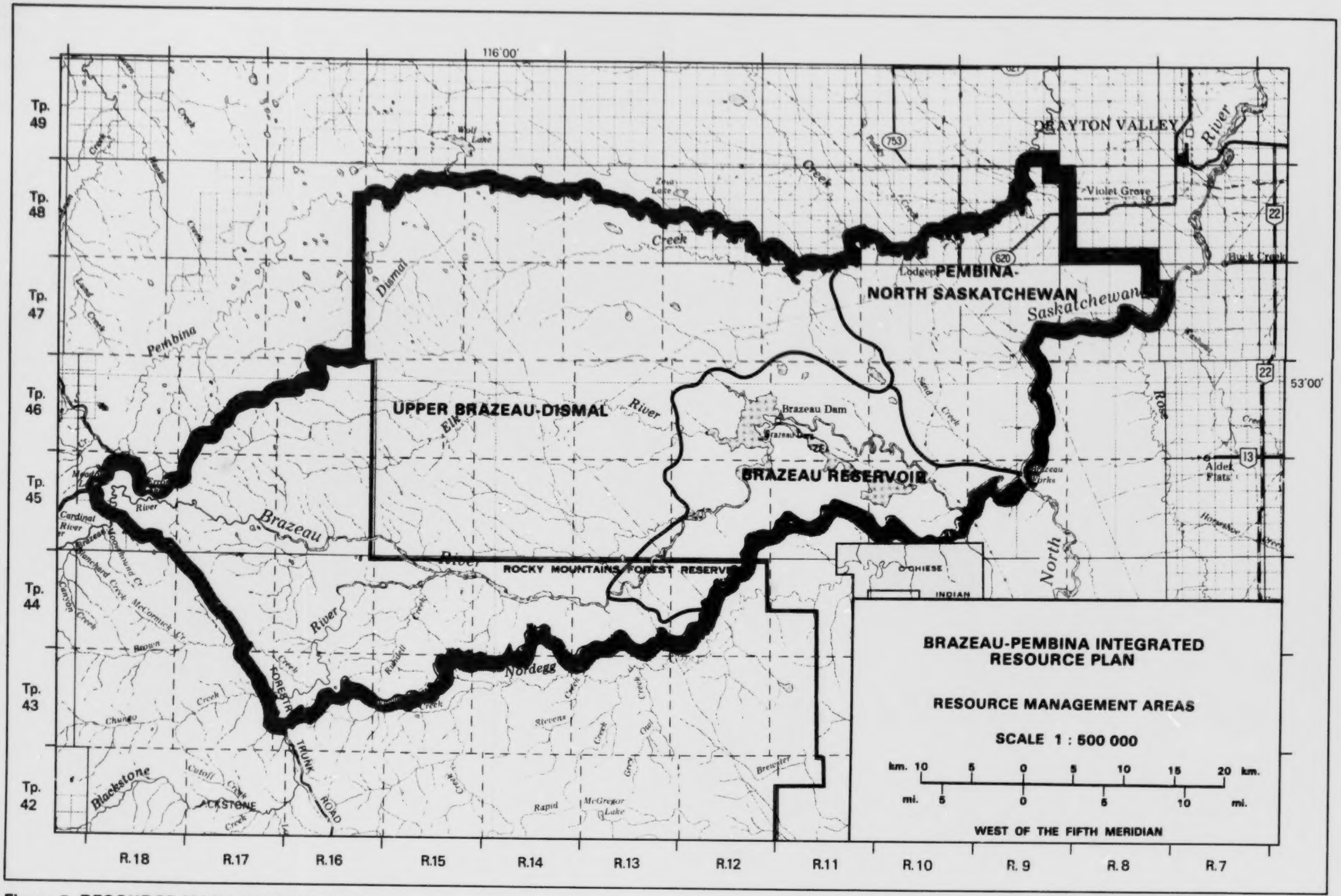
BRAZEAU-PEMBINA INTEGRATED RESOURCE PLAN
RESOURCE MANAGEMENT AREAS
SCALE 1 : 500 000
km. 10 5 0 5 10 15 20 km.
mi. 5 0 5 10 mi.
WEST OF THE FIFTH MERIDIAN
PEMBINA-NORTH SASKATCHEWAN
UPPER BRAZEAU-DISMAL
BRAZEAU RESERVOIR
ROCKY MOUNTAINS FOREST RESERVE
DRAYTON VALLEY
Violet Grove
Lodgepole
Brazeau Dam
Brazeau Forks
Alder Flats
Nordegg
O'CHIESE INDIAN
Saskatchewan
North
Brazeau
River
Pembina
Dismal
Elk
Blackstone
Cardinal River
FORESTRY TRUNK ROAD
116°00'
53°00'
Tp. 49
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Figure 5. RESOURCE MANAGEMENT AREAS

(see Figure 6). The major water courses in the area are the Pembina River along the northern boundary, the North Saskatchewan River along the southern boundary and Sand Creek in the southwest corner. The RMA is within the Boreal Foothills ecoregion which is a transition between the deciduous Boreal Mixedwood and the coniferous Boreal Uplands ecoregions. Forest cover consists of mixedwood stands of aspen, balsam poplar, lodgepole pine, white spruce and black spruce. Deciduous tree species are dominant and scattered muskegs are common. The major physiographic features are the Brazeau Plain and the Cynthia Upland in the western portion of the RMA.

7.1.2 Resource Management Strategy

The primary intent for resource management in the Pembina-North Saskatchewan Resource Management Area is:

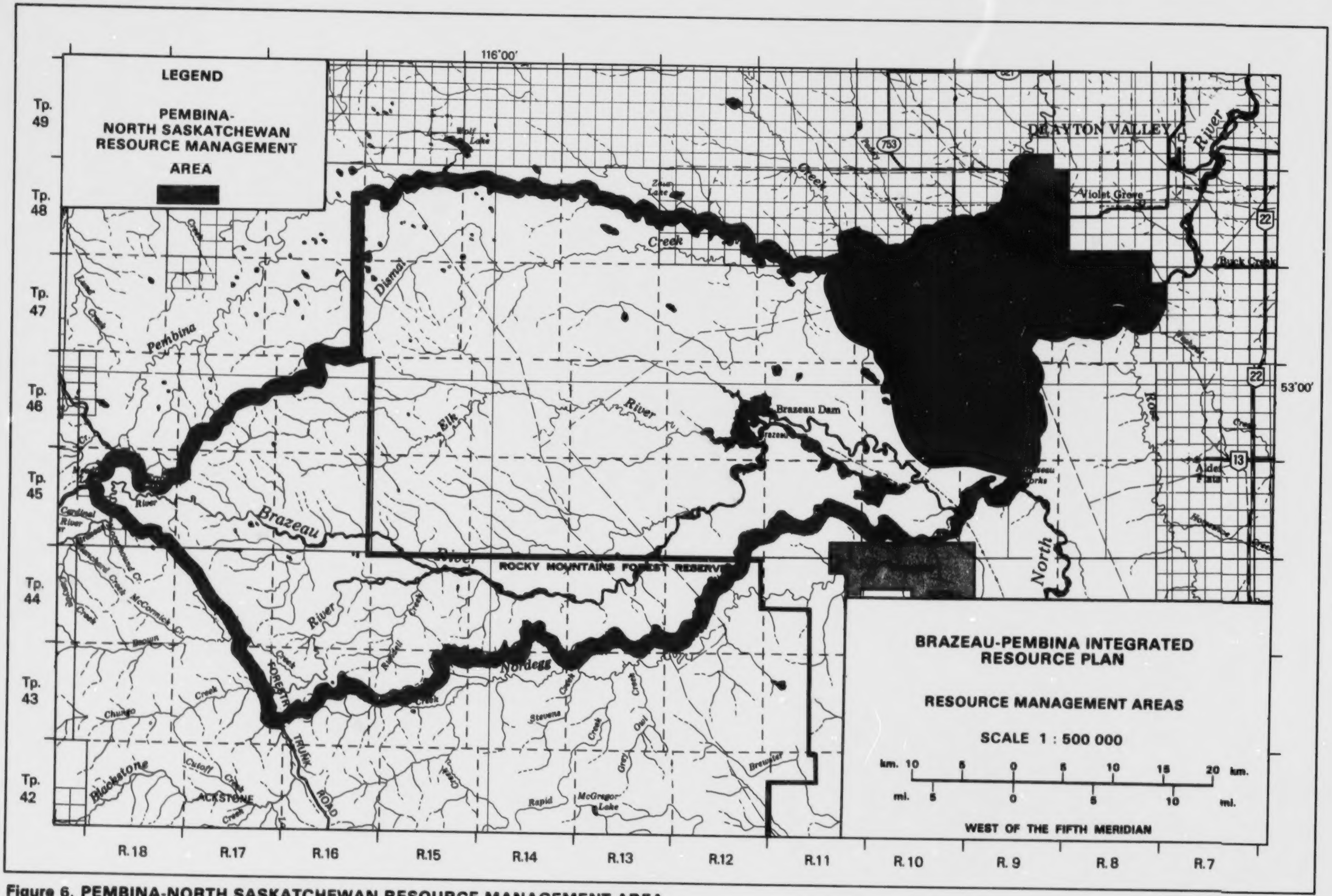
> To provide for use of petroleum and natural gas, timber, fisheries, wildlife and forage resources.

Specific resource management objectives and guidelines were developed for the indicated resource sectors. No priority is intended or implied by the sequence of the following objectives and guidelines.

7.1.2.1 Water and Watershed Resources

Discussion

The major watercourses in this RMA are the Pembina River along the northern boundary, the North Saskatchewan River along the eastern boundary and Sand Creek. The RMA is not significant in terms of water production. Water originating within and flowing through the RMA is extensively used by downstream consumers. Although watershed sensitivity has been rated as moderate, intensive petroleum and natural gas exploration and development have resulted in a number of erosion problems. The potential for terrain damage is moderate to high because of the relatively large areas of poor drainage. Fine textured soils are common throughout the RMA and seepage zones and slumping occur along the major river breaks bordering the North Saskatchewan River. A number of wellsites are located in the immediate backshore of the North Saskatchewan River where the potential for oil spills resulting from accidents or ice buildup and flooding is a concern. An area in the eastern half of the RMA has been identified as a potential agricultural expansion area.


LEGEND
PEMBINA-
NORTH SASKATCHEWAN
RESOURCE MANAGEMENT
AREA
BRAZEAU-PEMBINA INTEGRATED
RESOURCE PLAN
RESOURCE MANAGEMENT AREAS
SCALE 1 : 500 000
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R. 8
R.7
DRAYTON VALLEY
Violet Grove
Buck Creek
Brazeau Dam
ROCKY MOUNTAINS FOREST RESERVE
Nordegg
Pembina
Brazeau
River
Elk
North
Creek
Diamal
Wolf Lake
Cardinal River
McCormick Cr.
Brown
Chungo
Blackstone
Cutoff
Stevens
Grey
Owl
Rapid
McGregor Lake
Brewster
FORESTRY TRUNK ROAD
Alder Flats
Rose
753
22
13

Figure 6. PEMBINA-NORTH SASKATCHEWAN RESOURCE MANAGEMENT AREA

Management Objectives

1. To maintain or improve existing water quality and streamflows.

Management Guidelines

1. Access should be confined to winter in the considerable areas of poor drainage.
2. Buffers should be maintained and, where necessary, created between wellsite locations and watercourses.
3. Industrial activities with the potential to deteriorate water quality may be restricted on the flood plain of the North Saskatchewan River.
4. Crown lands in the potential agricultural expansion area, which are required for watershed protection, would be retained under public ownership.

7.1.2.2 Mineral Resources

Discussion

The Pembina-North Saskatchewan RMA is the predominant RMA for petroleum production in the planning area. Three-quarters of the RMA is covered by the Pembina petroleum and natural gas field and virtually the entire RMA is under petroleum and natural gas disposition. In 1984, petroleum production from this portion of the Pembina field was 450 000 m^3 from over 400 wells. Little natural gas was produced. Petroleum reserves within this RMA are approximately 11 million m^3 and represent most of the petroleum reserves in the planning area. Infrastructure within the RMA is well established and petroleum and natural gas interest and activity is high.

Management Objectives

1. To provide opportunities for industry to assess and develop all petroleum and natural gas reserves associated with the Pembina field and explore for other mineral resources.

Management Guidelines

1. No specific management guidelines were identified for mineral resources.

7.1.2.3 Timber Resources

Discussion

The timber resource in this RMA is primarily deciduous and is mostly approaching, or has reached, maturity. The area falls within the R4 FMU and contains portions of coniferous quotas and a deciduous timber allocation area. A portion of this RMA also falls within the O'Chiese block of the Brazeau TDA. The eastern portion of the RMA has been identified as a potential agricultural expansion area. A major portion of the volume of the deciduous timber allocation falls within the potential agricultural expansion area.

Management Objectives

1. To provide for increased use of both coniferous and deciduous timber resources on an optimum long-term sustained yield basis to meet the demands of quota holders, local operators and the Brazeau Timber Development.
2. To increase the amount of land available for sustained yield timber production.
3. To utilize deciduous timber resources before decay renders the resource uneconomical. Stands in which decay has rendered the deciduous resource uneconomical will be brought back into production where feasible.

Management Guidelines

1. Timber harvesting in the Deciduous Timber Allocation in Township 47, Ranges 8 to 10, west of 5, will continue under the direction of the Alberta Forest Service. Timber harvesting will occur in a manner which facilitates use of the cutover areas for short term grazing (i.e. five years) while maintaining the option for annual crop production or timber production in the long term. Reforestation of cutover areas within the Deciduous Timber Allocation will not occur during a five-year assessment period. The area will remain in the Green Area during the assessment period.
2. If capability for annual crop production has not been demonstrated after five years, the land will be dedicated to sustained yield timber production with grazing where appropriate in the context of long term forest management. The area would remain in the Green Area.

7.1.2.4 Wildlife Resources

Discussion

The Pembina North Saskatchewan RMA contains extensive areas of mixedwood and organic habitats which support a moderate moose population of approximately 100 animals. White-tailed and mule deer and elk also occur in moderate numbers and black bears are fairly numerous. The valleys of the Pembina and North Saskatchewan rivers are very important as travel corridors and winter habitat for wildlife. Highest densities of moose, elk and deer are found in the mainstem and tributary valleys during the winter months.

Management Objectives

1. To increase wildlife populations to 255 moose (0.58 animals/ km^2), 50 elk and 40 mule deer.
2. To maintain a population of approximately 120 white-tailed deer and 20 black bears.
3. To reduce wolf populations to approximately five animals.
4. To protect and enhance ungulate winter range in the vicinity of the Brazeau Fire Tower, Pembina and North Saskatchewan rivers and Sand Creek.
5. To maintain a mosaic of habitat types necessary for the continued existence of wildlife populations of the area.

Management Guidelines

1. Access reclamation and closure must be an integral part of industrial programs. The use of motorized recreational vehicles will be regulated in the portion of the North Saskatchewan River valley in Township 46, Range 9, west of 5, the Sand Creek valley, and the Pembina River valley.
2. Regulation of animal densities will be done by commercial trapping and Treaty Indian and recreational hunting. Trappers will be encouraged to maintain wolves at low densities to promote higher ungulate densities.
3. The natural clearings and stands of mixed deciduous cover (primarily along the North Saskatchewan River, Pembina River,

Sand Creek and aspen stands north of the Brazeau Tower) should be managed primarily through timber harvesting, to provide a broad range of tree species and age classes which will optimize wildlife productivity.

4. As demand for ungulates increases, range improvement programs will be undertaken to increase the winter carrying capacity for elk, particularly in grassland shrub communities.

7.1.2.5 Fisheries Resources

Discussion

There are moderate fisheries values within this RMA, although present use is relatively low. The major fish-bearing waters in this area are the North Saskatchewan and Pembina rivers. Moderate populations of arctic grayling, mountain whitefish, northern pike and walleye are present in the Pembina River. The same species, with the exception of arctic grayling, are also present in the North Saskatchewan River. Both major streams probably support significant fish migrations.

Management Objectives

1. To maintain the current ability of the North Saskatchewan and Pembina rivers to support fish migrations and overwintering.

Management Guidelines

1. Basic fisheries and habitat inventory surveys are required in this RMA. Critical fish spawning, rearing and overwintering locations in the watercourses of this RMA should be identified.
2. To prevent excessive aquatic habitat damage or direct mortality of fish in downstream areas, abnormal water level fluctuations caused by hydro-electric power generation activities at the Brazeau and Bighorn plants must be kept within acceptable limits.

7.1.2.6 Recreational and Tourism Resources

Discussion

This RMA currently supports a low level of recreation. Most of the use is dispersed and extensive rather than intensive.

Hunting, fishing, snowmobiling, off-highway vehicle activities and random camping occur throughout and water traversing activities such as canoeing, kayaking and jet boating are popular on the North Saskatchewan River. Sites along the North Saskatchewan River have been identified as having potential for development as access points or staging areas for river users.

Management Objectives

1. To provide for continued use of the area for informal extensive land- and water-based recreation including:

   (a) hunting, cross-country skiing, hiking, backcountry camping, snowmobiling and use of all-terrain vehicles, and
   (b) fishing, canoeing, kayaking and jet boating.

2. To protect selected areas along major rivers and around lakes for future water access point development.

3. To provide adequate opportunities for outdoor recreation for existing and future demands with emphasis on the Lodgepole area and the North Saskatchewan River valley.

Management Guidelines

1. Further recreational facility development within this RMA will have a low priority within the Rocky-Clearwater Forest. Future developments will be small scale (i.e. water access points with fewer than 25 unit campgrounds). Several locations along the North Saskatchewan River will be evaluated as possible sites for development of water access points. The Blue Rapids area and a number of sites in the Rocky-North Saskatchewan planning area will be considered. Preference will be given to locations with existing road access.

2. Although the Lodgepole area has been identified as having the potential for development of a cross-country ski trail system, this site has a lower priority than areas in the Rocky-North Saskatchewan Planning Area.

7.1.2.7 Forage Resources

Discussion

The Pembina-North Saskatchewan is the only RMA within the planning area which currently supports domestic grazing. Grazing use is low and confined to three small grazing leases along the Pembina and North Saskatchewan rivers. Use of the available AUMs on these leases has averaged 47 per cent over the last five years. Two leases are underused and one has been consistently overused. One lease has had a range improvement project.

The Alberta Forest Service has identified three areas with potential for unimproved grazing in this RMA. AFS considers the major portion of the RMA to be unsuitable for unimproved grazing because of heavy brush cover, poor drainage and the low palatability of native plant species.

Public Lands Division has identified a large area with improved grazing potential in the eastern portion of this RMA. Assessment of the arability of this land was based on the Brazeau-Pembina Ecological Land Classification and limited soil sampling. The discussion under Section 6.8 is applicable to forage resources in this RMA.

Management Objectives

1. To increase the level of improved and unimproved domestic grazing where potential and demand exist.

Management Guidelines

1. Additional land in the Green Area will be allocated to domestic grazing through grazing dispositions, when suitable land is available and demand is present. The Alberta Forest Service, in consultation with Fish and Wildlife Division, will determine appropriate sites, carrying capacities and operating guidelines for grazing dispositions within the Green Area.
2. A periodic review and assessment of all grazing dispositions will be undertaken.
3. The carrying capacity of suitable grazing dispositions will be increased, through various government assistance programs as well as the lessee's own means, contingent upon acceptance of an approved range management plan.

7.1.2.8 Agricultural Resources

Discussion

As discussed in Section 6.8, Public Lands Division and Alberta Agriculture have identified a block of land in Township 47, Ranges 8 to

10, west of 5, which has potential for agricultural development. The arable capability of this area is being investigated.

Management Objectives

1. To determine the capability for annual crop production of land in Township 47, Ranges 8 to 10, west of 5.

Management Guidelines

1. Public Lands Division will assess the capability of the entire area for annual crop production over a five-year period. Public Lands Division and/or Alberta Agriculture will assess the demand for arable land during the same period.

2. If capability for annual crop production has been demonstrated after the five-year assessment period, appropriate lands in Township 47, Ranges 8 to 10, west of 5, would be made available for agriculture. If a demand for arable land is identified after the assessment period, lands would be transferred from the Green Area to the White Area, and selected parcels would be posted for sale. If demand for arable land is not present, the area would be maintained in short-term timber production. The rate of agricultural development would depend upon the demand for arable land.

7.1.3 Zoning for the Pembina-North Saskatchewan Resource Management Area

The Eastern Slopes Policy zoning categories were used to locate resource management objectives geographically. The revised Eastern Slopes Policy zoning configuration is indicated on the map in the map pocket. A brief description and rationale for the zoning within the Pembina-North Saskatchewan RMA follow.

Critical Wildlife - in the following locations for the indicated reasons:

(a) along the Pembina River to the immediate west of Lodgepole to protect winter range for elk and moose.

(b) riparian areas along Sand Creek, the North Saskatchewan River and associated tributaries to protect winter range for moose and elk.

Multiple Use - the portions of the RMA which are outside Critical Wildlife and Facility zones, to allow for a broad range of resource utilization.

Facility - an area around the hamlet of Lodgepole to accommodate existing and proposed development.

7.2 Brazeau Reservoir Resource Management Area

7.2.1 General Description

The Brazeau Reservoir Resource Management Area is an area of approximately 453 km^2 in the south-central portion of the Brazeau-Pembina Planning Area (see Figure 7). The dominant feature of the RMA is the Brazeau Reservoir which covers an area of 84 km^2 when filled to capacity. The reservoir was created to augment low winter flows on the North Saskatchewan River and to provide water for hydro-electric power generation.

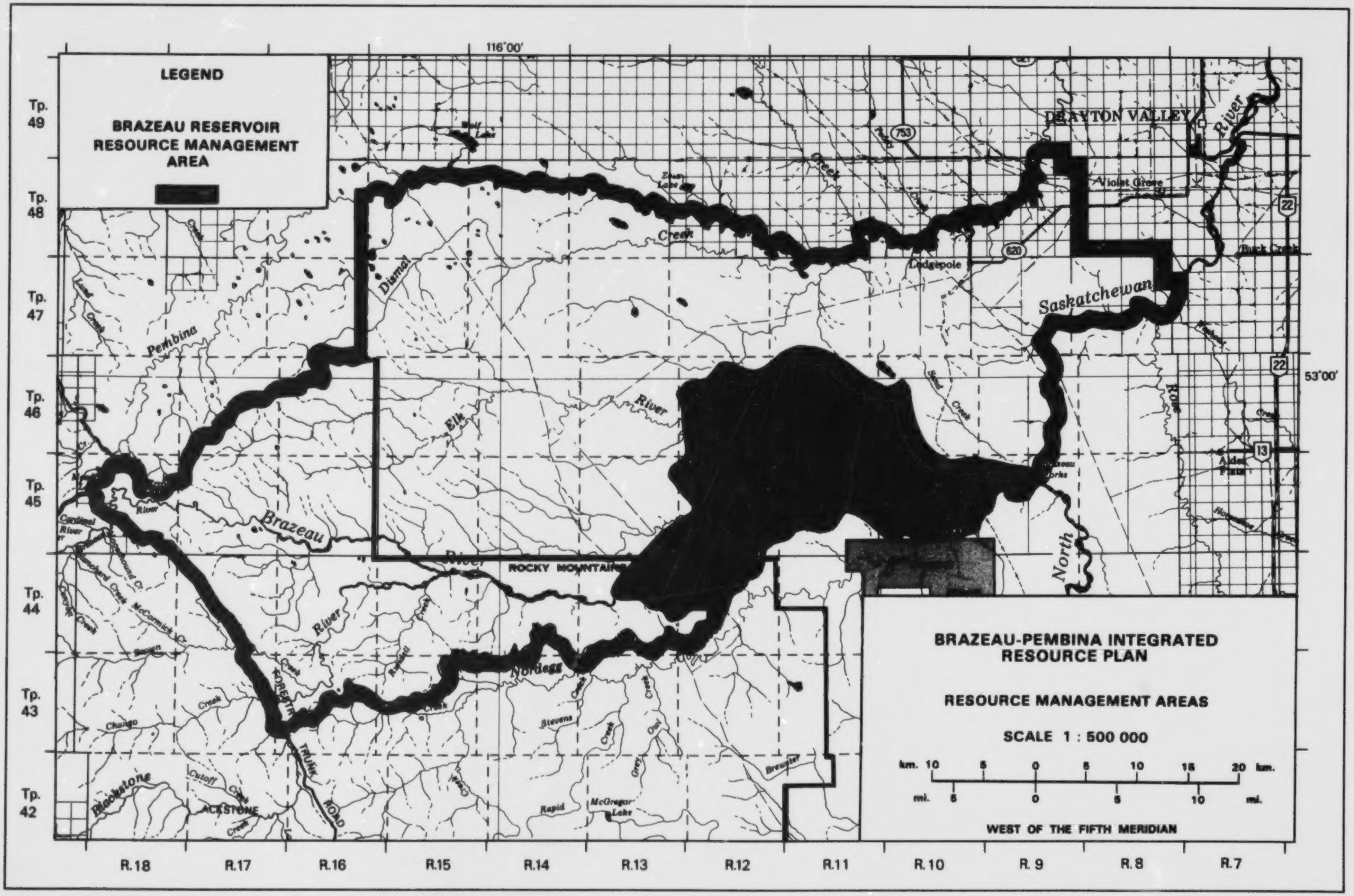
The RMA is within the Boreal Foothills ecoregion and is covered by mixedwood stands of aspen, balsam poplar, lodgepole pine, white spruce and black spruce. Muskeg areas are common. The dominance of deciduous tree species, such as aspen, decreases as one moves west within the Boreal Foothills ecoregion. The RMA is located on the Brazeau Plain, a relatively flat glacio-lacustrine plain situated between the eastern Cynthia Uplands and the Wolf Lake Uplands to the west.

7.2.2 Resource Management Strategy

The primary intent for resource management in the Brazeau Reservoir Resource Management Area is:

To provide for use of water, petroleum and natural gas, intensive water-based recreational resources, timber, fisheries and wildlife.

Specific resource management objectives and guidelines were developed for the indicated resource sectors. No priority is intended or implied by the sequence of the following objectives and guidelines.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BRAZEAU-PEMBINA INTEGRATED RESOURCE PLAN
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DRAYTON VALLEY
Violet Grove
Lodgepole
Saskatchewan
North
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Brazeau
Pembina
Dismal
Elk
Creek
ROCKY MOUNTAIN
Nordegg
FORESTRY TRUNK ROAD
Blackstone
BLACKSTONE
Cutoff
Chungo
McCormick Cr.
Cardinal River
McGregor Lake
Rapid
Stevens
Grey Owl
Brewster
Rose
Buck Creek
Alder Flats
Wolf Lake
Zeta Lake
Lund Creek
Sand Creek
753
620
22
13

Figure 7. BRAZEAU-RESERVOIR RESOURCE MANAGEMENT AREA

7.2.2.1 Water and Watershed Resources

Discussion

The Brazeau Reservoir dominates the RMA. The reservoir was formed in 1961 by construction of a large earth-fill dam across the Brazeau River at the Big Bend site. The reservoir is operated for the dual purpose of hydro-electric power generation and flow augmentation and has limited flood control capability.

A hydro-electric power generating station is located 19 km downstream of the dam and is connected to the reservoir by a canal. The Brazeau River between the dam and the powerhouse is now abandoned and carries only groundwater seepage and spillway flow.

The reservoir currently has a full supply level of 967 m above sea level (ASL) and has been designed so that the level can be increased to 976 m ASL. Winter draw-down in the reservoir is generally 20 to 30 m. The reservoir was not properly cleared of trees prior to flooding, and floating debris has been a problem. The Alberta Forest Service has removed a great deal of the floating debris and standing dead timber.

The only major watercourse in the Brazeau Reservoir RMA is the Brazeau River, which is rated as having a low watershed sensitivity. Although soils are glacio-lacustrine in origin and fine textured, erosion hazard is reduced by the relatively flat subdued topography of the Brazeau Plain. The potential for terrain damage resulting from summer land use activities is moderate to high because of the large area of organic wetlands. Overall, the watershed sensitivity of this RMA is low to moderate. Potential future recreation developments on the Brazeau Reservoir area have been identified as a possible watershed concern.

Management Objectives

1. To continue use of the Brazeau Reservoir for hydro-electric power generation in recognition of the existing agreement between TransAlta Utilities Ltd. and the Alberta government.

2. To ensure that water quality in the RMA is maintained.

Management Guidelines

1. Access should be confined to winter in the considerable areas of poor drainage.
2. No permanent structures will be permitted below the 976 m ASL contour along the shoreline of the Brazeau Reservoir to allow for possible future expansion of the reservoir. A protective notation to prevent sale of land in the area is in place.
3. Watershed concerns (i.e. sewage disposal and water quality) will be addressed in future recreation developments in the vicinity of the Brazeau Reservoir.
4. Examination of a full range of resource management concerns should occur prior to increasing the reservoir level to the maximum. There are no plans to raise the level of the reservoir at this time.

7.2.2.2 Mineral Resources

Discussion

The Brazeau Reservoir RMA is important for natural gas production. The Brazeau River petroleum and natural gas field covers half of the RMA and over 90 per cent of the area is under oil and gas disposition. Petroleum production and reserves within the RMA are minor. Gas production was approximately 200 million m^3 in 1984 and reserves were over 5 billion m^3.

Management Objectives

1. To provide opportunities for industry to assess and develop all petroleum and natural gas reserves associated with the Brazeau River and Hanlan fields and to explore for other mineral resources.

Management Guidelines

1. Site specific guidelines relating to petroleum and natural gas exploration and development in the immediate vicinity of the Brazeau Dam hydro-electric facilities are being developed.

2. Exploration and development of minerals (i.e. aggregate) will not be permitted in the three General Recreation Zones around the Brazeau Reservoir.

7.2.2.3 Timber Resources

Discussion

A large portion of this RMA has a low wood-fibre production capability due to the presence of extensive poorly drained areas. There is, however, an unallocated AAC of coniferous and deciduous timber. The level of harvesting in the past has been limited. Parts of coniferous quotas and a Miscellaneous Timber Use Area occur within this RMA and the O'Chiese block of the Brazeau TDA incorporates the area to the east of the Brazeau River and Reservoir. A small portion of this RMA falls within a proposed Quota Sales Area. Use of timber resources is expected to increase in the near future.

Management Objectives

1. To increase use of coniferous and deciduous timber resources on a sustained yield basis to meet the demands of the timber industry for additional timber in the Brazeau TDA and quota sales area.

Management Guidelines

1. Should the level of the Brazeau Reservoir be raised, merchantable timber in the affected area will be salvaged and un-merchantable stands cleared and disposed of before flooding.

2. On upland areas that would not be affected by flooding, all harvested stands will be reforested in accordance with established reforestation regulations and policy.

7.2.2.4 Wildlife Resources

Discussion

A diverse mixture of muskeg and upland habitats occurs in this RMA. Moose are the most abundant ungulate species with lower numbers of elk and deer found mainly along major water courses such as the Brazeau and Elk rivers. Black bear and wolves are also common in the area. In general, the somewhat limited access in this area has prevented intense exploitation of big game as has occurred in more developed adjacent areas.

A special feature of the RMA is the presence of water-dependent bird species around the Brazeau Reservoir. Two heron colonies, a major osprey colony and nesting Canada geese are significant wildlife resources which require a high level of protection from human disturbance.

Management Objectives

1. To increase ungulate populations to 200 moose, 100 elk and 60 mule deer.

2. To maintain populations of 40 white-tailed deer, 20 black bears, six cougar and 100 coyotes.

3. To reduce wolf populations to 10 animals and to maintain 10 wolverine.

4. To maintain the two heron colonies on the Brazeau Reservoir.

5. To increase the number of osprey nesting around the Brazeau Reservoir.

6. To encourage nesting of Canada geese on the Brazeau Reservoir.

7. To reintroduce river otter to the RMA.

8. To maintain a diversity of habitat areas adjacent to the reservoir in order to support a variety of wildlife species.

9. To protect several small areas, which are adjacent to the western portion of the reservoir, because of their importance to local wolf populations.

10. To protect and enhance ungulate winter range along the Brazeau River and adjacent upland sites.

Management Guidelines

1. Animal densities will be regulated primarily by hunting and trapping.

2. Deer, elk and moose populations will be encouraged to increase through cooperative efforts to ensure that timber harvesting in the area accounts for wildlife needs and is designed to provide benefits for wildlife where possible.

3. Wolves will be managed to encourage higher ungulate densities.

4. Artificial nesting platforms will be established around the reservoir to provide secure nesting sites for the present osprey population and to encourage an increase in osprey numbers.

5. Access to the heron and osprey colonies around the reservoir will be monitored to assess human impact on resident birds.

6. Otter will be re-introduced into the eastern portion of this RMA when project feasibility has been determined and stocks are available.

7.2.2.5 Fisheries Resources

Discussion

This RMA provides an important sport fishery primarily associated with the Brazeau Reservoir and power canal. Northern pike are abundant in the power canal and locally in the main reservoir. Bull trout and Rocky Mountain whitefish also occur in the reservoir. Spawning areas are likely present in tributaries to the reservoir and in flooded areas adjacent to the power canal.

Although little knowledge of fish populations of the Brazeau River below the power house is available, it is likely walleye, northern pike and mountain whitefish are present. Their numbers are probably depressed by unnatural water level fluctuations resulting from the current pattern of power generation at the site.

Management Objectives

1. To maintain spawning areas for northern pike within the Brazeau Reservoir and power canal.

2. To protect three lakes, with identified fish stocking potential, located to the immediate north of the Brazeau Reservoir.

3. To maintain accessible spawning areas in tributary streams for trout and Rocky Mountain whitefish which are resident in the Brazeau Reservoir.

Management Guidelines

1. The negative impact of human-caused water level fluctuations on fisheries within and downstream of the reservoir should be minimized. Any plans for significant modifications of reservoir operation patterns should be the subject of environmental impact analysis to ensure negative impacts on fisheries are avoided or mitigated. Fisheries investigations are required on the Brazeau River below the reservoir to identify the nature and extent of impact. This information is required to identify techniques to counteract the negative effects of hydro-electric power generation on downstream fisheries.

2. Additional fisheries survey work in the reservoir and in the Brazeau River below the powerhouse will be completed by 1990, to locate critical habitat areas and to determine fish population sizes.

3. Appropriate land use reservations (i.e. conservation) will be applied around small lakes with fish stocking potential, to ensure their protection for future recreational use.

7.2.2.6 Recreational and Tourism Resources

Discussion

Recreational use within the RMA is both extensive and intensive. Recreation is focused on the Brazeau Reservoir which has the only recreational facilities in the RMA. Although the potential for dispersed land-based recreational activities is limited by poor drainage, there is a moderate potential for winter activities such as snowmobiling and cross-country skiing. In addition, sites around the Brazeau Reservoir have been identified as having potential for future facility development. Demand for group camping opportunities has been identified in the RMA.

Management Objectives

1. To maintain current water-based recreational opportunities.

2. To provide opportunities for private sector recreational development at appropriate locations.

Management Guidelines

1. The type and amount of recreational use will be monitored on an on-going basis and additional facilities provided as required. Demand does not warrant expansion of existing automobile access camping facilities or the development of new automobile access camping facilities at this time.

2. The feasibility of establishing a group camping facility in the vicinity of the Brazeau Reservoir will be examined.

3. Options for future development of major public or private sector recreational facilities at appropriate locations in proximity to the Brazeau Reservoir will be maintained. Appropriate future developments could include a large campground, day-use sites, boat launching facilities, small boat-in campsites and staging areas and trail systems for hiking, cross-country skiing, off-highway vehicles, snowmobiling and horseback riding.

4. Future proposals for development of residential subdivisions will be directed away from the shoreline of the Brazeau Reservoir (see Guideline 2, Section 7.2.2.1). Residential subdivisions will not be permitted in the three General Recreation zones around the reservoir.

5. Public access to the shoreline of the Brazeau Reservoir will be maintained to provide opportunities for use of water-based recreational resources.

7.2.2.7 Forage Resources

Discussion

Domestic grazing does not occur in the RMA. Most of the area is unsuitable for unimproved or improved grazing because of poor drainage, heavy tree cover and lack of suitable forage species. One area along the Brazeau River is partially within the RMA and has been identified as having unimproved grazing potential. These sites are quite distant from existing agricultural operations and access is poor. Much of this area is within Critical Wildlife-Zone 2.

Management Objective

1. To provide for ungulate grazing of forage resources.

Management Guidelines

1. Applications for domestic grazing will be considered by the Alberta Forest Service in consultation with the Fish and Wildlife Division. It is not anticipated that any grazing dispositions will be granted in the near future.

7.2.3. Zoning for the Brazeau Reservoir Resource Management Area

The Eastern Slopes Policy zoning categories were used to locate resource management objectives geographically. The revised Eastern Slopes Policy zoning configuration is indicated on the map in the map pocket. A brief description and rationale for the zoning within the Brazeau Reservoir RMA follow.

Critical Wildlife - in the following locations for the indicated reasons:

(a) north and south of the Brazeau River near its confluence with the North Saskatchewan River to protect winter range for elk and moose,

(b) small areas along the north side of the Brazeau River below the dam to protect winter range for elk,

(c) areas along the south side of the power canal to protect ungulate wintering areas and osprey and heron colonies,

(d) riparian areas along the Brazeau River above the reservoir to protect winter range for elk and moose,

(e) riparian area at the mouths of the Elk River and Crow Creek to protect ungulate winter range.

General Recreation - in the following areas for the indicated reasons:

(a) an area on the eastern side of the Brazeau Reservoir to allow for development of intensive water-based recreation facilities, and

(b) small areas on the north and west side of the reservoir to allow for development of small-scale, water-based recreation facilities.

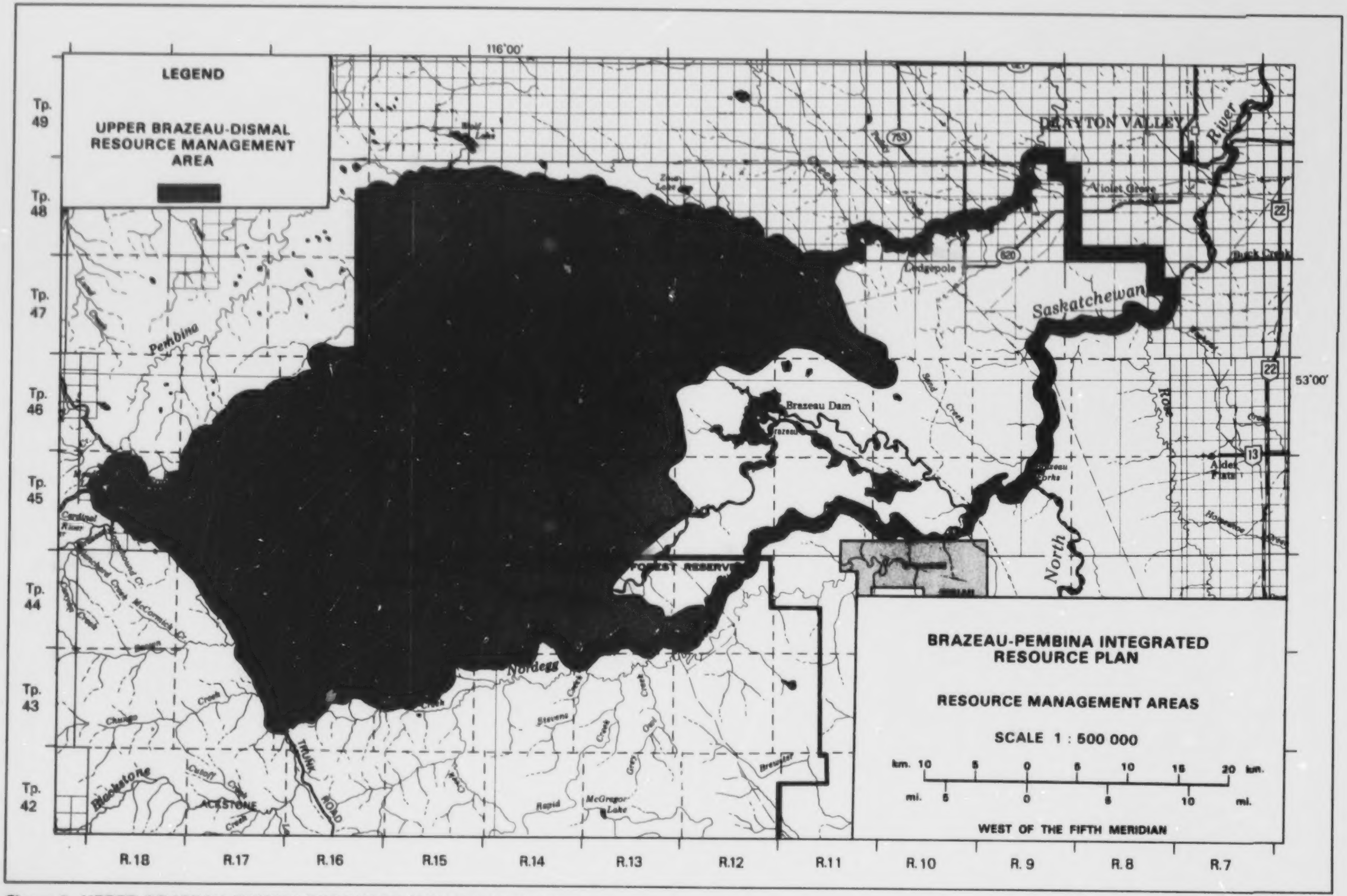
Multiple Use - the portions of the RMA which are outside of Critical Wildlife, General Recreation and Industrial zones to allow for a broad range of resource utilization.

Industrial - the site occupied by the installation and a small surrounding area to recognize the Brazeau Dam, pumphouse and powerhouse.

7.3 Upper Brazeau-Dismal Resource Management Area

7.3.1 General Description

The Upper Brazeau-Dismal Resource Management Area is an area of approximately 2 056 km^2 in the western portion of the Brazeau-Pembina Planning Area (see Figure 8). The major water courses in the RMA are the Pembina River and Dismal Creek to the north, the Elk and Owl rivers in the central part of the area and the Brazeau and Blackstone rivers in the south. The eastern portion of the RMA is within the Boreal Foothills ecoregion and the western two-thirds of the area is within the Boreal Uplands ecoregion. The basic difference in forest cover between the two ecoregions is that lodgepole pine replaces aspen as the dominant tree species as one moves west into the higher elevation


LEGEND
UPPER BRAZEAU-DISMAL RESOURCE MANAGEMENT AREA
BRAZEAU-PEMBINA INTEGRATED RESOURCE PLAN
RESOURCE MANAGEMENT AREAS
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R. 8
R.7
DRAYTON VALLEY
Violet Grove
Lodgepole
Saskatchewan
River
North
Brazeau Dam
Sand Creek
Rose
Alder Flats
Buck Creek
Pembina
Nordegg
FOREST RESERVE
Cardinal River
McCormick Cr.
Stevens
Rapid
McGregor Lake
Grey
Brewster
Blackstone
Cutoff Creek
TRUNK ROAD
Chungo
Creek
22
13
620
753

Figure 8. UPPER BRAZEAU-DISMAL RESOURCE MANAGEMENT AREA

Boreal Uplands. The Boreal Uplands ecoregion is characterized by extensive closed-canopy coniferous forests composed of lodgepole pine, spruce (white and black) and sub-alpine fir. Aspen and other deciduous species are generally absent. Organic areas are numerous and scattered. The major physiographic features in the RMA are the Wolf Lake Uplands and the Rocky Mountain Foothills along the western edge of the area.

7.3.2 Resource Management Strategy

The primary intent for resource management in the Upper Brazeau-Dismal Resource Management Area is:

> To provide for use of petroleum and natural gas, timber, extensive recreational resources, fisheries, wildlife and coal.

Specific resource management objectives and guidelines were developed for the indicated resource sectors. No priority is intended or implied by the sequence of the following objectives and guidelines.

7.3.2.1 Water and Watershed Resources

Discussion

The major watercourses in this RMA are the Pembina River, Dismal Creek and Nelson Creek to the north; Crow Creek and the Owl and Elk rivers in the central portion of the area; and the Brazeau and Blackstone rivers and Rundell Creek in the south. The RMA is rated highest in terms of water production within the planning area but overall yields are lower than those in areas to the west. Overall, this RMA is rated as having a moderate-high watershed sensitivity. Although surficial deposits are coarser and more stable than those in the other RMAs, slope steepness and higher drainage densities increase the potential for erosion, water quality deterioration and stream channel damage.

A number of drainages have been identified as being subject to high peak flows and are subject to channel and bank cutting and slumping. Potential increased peak flows resulting from major land clearing are a concern in the following drainages: Brown Creek, Rifle Creek, Lower Crow Creek, Nelson Creek and the Blackstone/Rundell Basin. There has been a high level of petroleum and natural gas activity and development and some areas of intensive timber harvesting in these drainages.

Management Objectives

1. To maintain water quality and protect soil stability.

Management Guidelines

1. Erosion and stream channel degradation resulting from land use activities will be minimized.

2. Access should be restricted to the winter in poorly drained areas.

3. Better information about the effects of land use and management activities on water quality, quantity and timing will be required.

4. Common corridors will be emphasized for linear developments.

5. Surface disturbances will be promptly reclaimed.

7.3.2.2 Mineral Resources

Discussion

Several designated natural gas fields in the RMA, including the Cordell, Hanlan, Blackstone and Peco fields, have been expanded by recent gas discoveries. The Brazeau River petroleum and natural gas field remains the largest and most important field in the RMA. Half the RMA is underlain by the five fields which have been mentioned plus the Columbia and Voyager fields. Almost 90 per cent of the area is under petroleum and natural gas dispositions. In 1984, petroleum production was approximately 300 000 m^3 and reserves were four million m^3. Natural gas production and reserves were about one billion m^3 and approximately 32 billion m^3, respectively. Most gas wells in the RMA are capped because of the long distances to main pipelines and reduced markets. There are four gas processing plants in the RMA, two of which produce elemental sulphur from the hydrogen sulfide-bearing natural gas of the Brazeau River, Blacksone and Hanlan gas fields. Several hydrogen sulphide-producing wells are located within the RMA.

Coal interest and exploration has been concentrated in the Upper Brazeau-Dismal RMA. The Chungo Creek deposit and the portion of the Coalspur coal field within the RMA in combination contain roughly 15 million tonnes of high volatility bituminous coal of excellent thermal qualities.

There is high potential for discovery of extensive additional coal reserves in the foothills portion of this RMA.

Management Objectives

1. To provide opportunities for industry to assess and develop the petroleum and natural gas reserves of the Brazeau River, Peco and Blackstone fields and to explore for further petroleum and natural gas deposits.

2. To provide opportunities for exploration and development of coal.

Management Guidelines

1. Exploration and development of minerals (i.e. aggregate) will not be permitted in the General Recreation Zone at the mouth of the Elk River.

7.3.2.3 Timber Resources

Discussion

The RMA incorporates part of the R3 and R4 FMUs. All of the R4 FMU and part of the R3 FMU are under coniferous quotas. At present there is an available AAC in both units and most of the timber is approaching or has reached maturity. The Brazeau TDA (Nordegg block) takes in the area south of the Brazeau River while the area north of the river has been identified as a potential quota sales area. Increased harvesting of timber resources can be expected in the near future.

Management Objectives

1. To increase use of coniferous and deciduous timber resources on a sustained yield basis to meet the demands of the timber industry for additional timber in the Brazeau TDA and quota sales area.

Management Guidelines

1. No specific management guidelines were identified for timber resources.

7.3.2.4 Wildlife Resources

Discussion

The RMA supports a diversity of wildlife species. Moose and elk are the most abundant ungulates with present populations of roughly 1 100 and 250, respectively. Mule deer, white-tailed deer, black bear and coyotes are also abundant in the area. Other species which are present at lower densities include wolves, grizzly bear, cougar and wolverine.

General areas of importance for ungulate wintering in the RMA include the Brazeau and Blackstone River valleys, the Owl and Elk River areas and the Dismal Creek-Pembina River area. Populations in portions of the RMA (i.e. Dismal Creek, Elk River) have recently suffered from harassment and overharvest due to unregulated use of access. Competition between escaped and/or abandoned horses and ungulates for range has been identified as a concern in the RMA.

Management Objectives

1. To increase moose populations to approximately 1 500 animals and elk populations to approximately 450 animals.

2. To increase mule deer populations to 350 animals and wolverine to 10 animals.

3. To maintain 100 white-tailed deer, 100 black bears, 10 grizzly bears, 10 cougar and 200 coyotes.

4. To reduce wolf populations to about 20 animals.

5. To maintain and enhance furbearer habitat:

   (a) in areas along Rundell, Rifle, Nelson and Dismal Creeks and the headwaters of the Elk River,
   (b) for marten and associated species along the Pembina and Upper Brazeau Rivers and Rifle Creek, and
   (c) for rare or unique furbearer species.

Management Guidelines

1. The mosaic of natural clearings and stands of mixed and deciduous cover (primarily along Rundell, Dismal, Nelson, Crow and Rifle creeks and along the Pembina, Elk, Owl, Brazeau and Blackstone rivers) should be maintained and managed, primarily through carefully regulated logging, to provide a broad range of vegetation species and age classes which will optimize wildlife habitat.

2. Regulation of animal densities will be accomplished through commercial trapping and recreational and Treaty Indian hunting. Trappers will be encouraged to maintain wolves at low densities to encourage higher ungulate densities.

3. Access reclamation and closure must be an integral part of all resource extraction programs. The use of motorized travel may be regulated in the Brazeau, Pembina, Blackstone, Elk and Owl River valleys. This may be accomplished through implementation of a designated vehicle routes pilot program in the area.

4. As the demand for ungulates increases, range improvement efforts may be undertaken to increase elk wintering carrying capacity, particularly in grassland-shrub communities.

7.3.2.5 Fisheries Resources

Discussion

The fisheries values of this RMA are moderate in general with certain key areas having very high values. Arctic grayling, Rocky Mountain whitefish and bull trout occur in the Pembina River and Dismal Creek drainages. The fishery in the system receives moderate to low use. Although the fisheries values of the Elk and Owl rivers and Rifle and Crow creeks are not well known, they appear to be low according to local reports. The mouths of all these streams appear to be important as spawning areas for northern pike which are resident in the reservoir. The Brazeau and Blackstone river systems support populations of Rocky Mountain whitefish and bull trout. Certain tributaries to this system are critical for spawning of bull trout and Rocky Mountain whitefish. These water courses likely receive the heaviest fishing pressure in the Upper Brazeau-Dismal RMA.

Management Objectives

1. To protect and maintain the following habitat areas and migratory routes which are critical for specific fish populations:

   (a) spawning and rearing areas for bull trout and Rocky Mountain whitefish in Rundell Creek and associated minor tributaries and on an unnamed tributary to the Brazeau River located in SW 4-45-16-W5;

   (b) an isolated channel of the Brazeau River upstream from the confluence with the Blackstone River, to protect a land locked population of bull trout;

   (c) spawning, rearing and overwintering areas for bull trout, mountain whitefish and arctic grayling in Dismal and Nelson creeks;

   (d) spawning areas for northern pike in the mouths of Rifle Creek, Crow Creek and the Elk River;

   (e) overwintering areas for northern pike and bull trout in Rifle Creek;

   (f) overwintering and rearing areas for bull trout and mountain whitefish in Brown Creek, the Blackstone River and the Brazeau River, primarily above the confluence with the Blackstone; and

   (g) spawning and overwintering areas for mountain whitefish, bull trout and some rainbow trout in the Owl and upper Elk Rivers.

2. To enhance the fisheries resource by establishing new habitats and/or new fish populations in suitable locations.

Management Guidelines

1. Additional fisheries survey work is required to refine the location of critical habitat areas and to determine population

sizes. This information is most urgently required for the Elk and Owl rivers, Rifle Creek and Crow Creek.

2. Overexploitation of newly accessible fish populations will be avoided through control of recreational access and through fishing regulation adjustments where necessary.

3. The cutthroat trout establishment program on the Blackstone River system will continue.

4. Several small lakes in this RMA will be examined to determine their capability to support stocked fish populations.

7.3.2.6 Recreational and Tourism Resources

Discussion

The RMA supports a relatively low level of extensive recreational use. There are two developed recreation areas in the RMA. Hunting, fishing, snowmobiling and random camping are the main recreational activities and a limited amount of hiking and off-highway vehicle use occurs. Canoeing, kayaking and jet boating activities occur on the Brazeau River to a limited degree.

Management Objectives

1. To provide continued informal extensive land- and water-based recreational opportunities including:
    (a) hunting, hiking, backcountry camping, snowmobiling and use of all-terrain vehicles, and
    (b) fishing, canoeing, kayaking and jet boating.
2. To continue to promote use of the existing recreation area on the Elk River.
3. To protect selected areas along major rivers and on lakes for water access point development.
4. To maintain scenic touring opportunities along the Forestry Trunk Road.

Management Guidelines

1. The type and amount of recreational use will be monitored on an on-going basis. Demand does not warrant expansion of existing facilities or new facility development at this time.
2. Although two unnamed lakes (in Township 45, Range 13 and Township 47, Range 13) have been identified as having potential for water access point facilities, demand does not warrant such development at this time.
3. The feasibility of providing commercial tourism facilities and services along the Forestry Trunk Road will be determined.
4. Residential subdivisions will not be permitted in the General Recreation Zone at the mouth of the Elk River.

7.3.2.7 Forage Resources

Discussion

Domestic grazing does not occur within the RMA. The only areas identified as capable of supporting domestic grazing are grasslands along the backshores of major rivers. These areas are zoned Critical Wildlife and are not considered suitable for domestic grazing because of remoteness and inaccessibility.

Management Objectives

1. To provide for ungulate grazing of forage resources.

Management Guidelines

1. Applications for domestic grazing will be considered by the Alberta Forest Service in consultation with the Fish and Wildlife Division. It is not anticipated that any grazing dispositions will be granted in the near future.

7.3.2.8 Ecological Resources

Discussion

The Brazeau Tufa ecologically significant area is located along the Brazeau River in the western portion of the RMA. This site contains a calcium carbonate deposit laid down by a small hillside spring. The tufa is a feature of geological and hydrological interest and has unusual associated vegetation.

Management Objectives

1. To protect ecological resources within the Brazeau Tufa ecologically significant area. The legal description of the site is SW 15-45-16-W5.

Management Guideline

1. An appropriate land use reservation or notation will be maintained to protect the tufa.

7.3.3 Zoning for the Upper Brazeau-Dismal Resource Management Area

The Eastern Slopes Policy zoning categories were used to locate resource management objectives geographically. The revised Eastern Slopes Policy zoning configuration is indicated on the map in the map pocket. A brief description and rationale for the zoning within the Upper Brazeau-Dismal RMA follow.

Critical Wildlife - in the following locations for the indicated reasons:

(a) Riparian and organic areas along Dismal, lower Nelson, Rundell and Rifle creeks and the Pembina, Elk, Owl, Brazeau and Blackstone rivers to protect winter range for elk, moose and deer.

(b) Morainal areas in Township 45, Ranges 14 and 15, West of 5 to protect winter habitat for elk and moose.

(c) Along Rundell Creek and an unnamed tributary to the Brazeau River to protect spawning and rearing areas for bull trout and mountain whitefish.

General Recreation - at the mouth of the Elk River to allow development of small-scale water-based recreation facilities such as boat-in campsites.

Multiple Use - the portions of the RMA which are outside of Critical Wildlife, General Recreation and Industrial zones to allow for a broad range of resource utilization.

Industrial - at the following locations:

(a) the Dome Petroleum gas processing plant (Note: Most of the plant is on patent land and is not zoned) in Sections 1 and 12, Township 46, Range 14, West of 5, and

(b) the Dome Petroleum gas processing plant in NW 10, Township 47, Range 14, West of 5.

8. PLAN IMPLEMENTATION, MONITORING AND AMENDMENT

General procedures and mechanisms for the implementation, monitoring and amendment of the Brazeau-Pembina Integrated Resource Plan are outlined in this section. A statement of program and project implications and associated benefits and costs associated with taking direction from the plan will be contained in a supplemental document titled Brazeau-Pembina Integrated Resource Plan: Implementation.

General Implementation

The Brazeau-Pembina Integrated Resource Plan will be implemented within the existing government framework of legislation, agency responsibilities, policies and administrative mechanisms. The plan will be considered to be implemented when it is providing direction for government resource management activities and public resource use within the planning area. The direction provided in the plan for government resource management activities will be translated into existing, new or modified resource management programs, projects, operational plans and administrative procedures such as referral systems. The plan direction for public resource use activities within the planning area will eventually be translated into normal control mechanisms such as permits, licences and leases.

Government resource management agencies that are participating in the implementation of the Brazeau-Pembina Integrated Resource Plan will have several responsibilities to ensure the effective delivery of the plan. Agencies must ensure that their resource management activities are consistent with the direction contained in the plan. Each agency must also ensure that public use of those resources, for which the agency is responsible, occurs in a manner which is consistent with the plan.

The agencies must also deal with any conflicts or concerns which arise with respect to implementation or interpretation of any provisions of the plan. These responsibilities are outlined by subject area below:

Referral System: Participating government management agencies will ensure that existing referral systems of the Alberta Government are comprehensive and encompass all affected or concerned agencies within the planning area.

Plan Monitoring: The Brazeau-Pembina Integrated Resource Plan will be reviewed annually by the Eastern Slopes Regional Resource Management Committee to ensure:

(a) an assessment of the relevancy of the specified resource management objectives in light of changing conditions and new information;

(b) an assessment of resource management guidelines;

(c) an assessment of agency operational plans to ensure their consistency with the intents, objectives and guidelines contained in the Brazeau-Pembina Plan;

(d) preparation of a statement recommending amendments to the Brazeau-Pembina Integrated Resource Plan and future actions required to maintain or promote government resource management activities in the planning area.

An annual report will document changes in the plan. The report will also highlight the previous year's activity in the planning area, including the number, type and location of referrals and what conflicts or concerns were addressed and resolved. The report will also indicate what might be expected to be accomplished in the planning area during the next year. The report may be deferred if a lack of activity or progress toward government resource management objectives within the planning area is identified.

A major plan review by the Eastern Slopes Regional Resource Management Committee will occur at five-year intervals to facilitate:

(a) a comprehensive assessment of all aspects of the plan, including but not limited to broad resource management objectives, zoning, activity/zone matrix and resource management area boundaries and intents,

(b) a public review on the same basis as the public is involved in the development of new integrated resource plans, and

(c) preparation of a statement recommending amendments to the plan and future actions required to maintain or promote government resource management activities in the planning area.

A five-year report will document all amendments. Major plan reviews may be undertaken more frequently than every five years if required by major resource policy commitments or developments of program initiatives.

Amendment Procedures: Changes to the broad planning area resource management objectives, zoning, activity/zone matrix and the resource management area boundaries and intents will require major amendment to the Brazeau-Pembina Integrated Resource Plan. An amendment to the plan may be required as a result of an annual review, major five-year review, government request or as a result of a request from an individual, group or organization outside the government. Proposed amendments to the Brazeau-Pembina Integrated Resource Plan from outside the government should be made by formal application to the assistant deputy minister of the Resource Evaluation and Planning Division, Alberta Forestry. Opportunities for public review of proposed amendments to the Brazeau-Pembina Integrated Resource Plan will be provided before changes are approved by the government. Amendments which entail a major policy decision or a change to the basic intent of the plan may be forwarded by the Minister of Forestry to the cabinet committee for approval.

9. IMPLICATIONS

Implications are major components of the plan and associated factors which are considered by decision makers who are responsible for approval of the plan. Implications can be positive or negative depending upon the perspective of the individual or organization. The following categories of implications were identified:

(a) general implications of the plan
(b) major implications of resource management decisions

Implications are discussed in the above categories.

9.1 General Implications of the Plan

Since the Brazeau-Pembina Plan is an integrated resource plan, there are a large number of implications associated with the government's commitment to integrated resource management and planning. Although they are not discussed in detail in the plan, decision makers were aware of these implications when reviewing the plan. The following discussion of implications relates specifically to the content of the Brazeau-Pembina Integrated Resource Plan.

The Brazeau-Pembina Integrated Resource Plan addresses a broad spectrum of resources including water, watershed, minerals, timber, wildlife, fisheries, recreational resources, forage, agricultural resources, ecological resources, historical resources, tourism and surface materials as well as access considerations. The plan contains positive, future-oriented, resource management objectives for each of the above resource sectors. Achievement of stated resource management objectives will provide a wide range of social and economic benefits. Objectives are stated at the planning area level and for specific resource management areas. A refined Eastern Slopes Policy zoning configuration is presented in the plan to further contribute to the geographic location of resource management objectives. The plan also contains recommendations for resource management actions which are intended to achieve stated resource management objectives. These resource management guidelines are defined for the planning area and resource management areas.

During development of the plan, the planning team gathered and evaluated a wide variety of resource information. A selection of this resource information is presented in the plan. When information deficiencies were identified, the team gathered the necessary information immediately or included provisions in the plan for future collection of such information.

The plan contains integrated resource management direction which provides for a full range of benefits from a variety of resources with minimum costs. The resource management direction in the plan will be useful to field-level resource managers in day-to-day decision-making, including operational planning.

In order to develop integrated direction, the planning team evaluated potential interactions between resource management objectives and actions. Provisions for beneficial interactions were included in the plan while negative interactions (i.e. conflicts) were eliminated by modification of resource management objectives or by development of appropriate resource management guidelines. Conflicts which were identified in the Terms of Reference (see Section 5) and during development of the plan, were resolved by the planning team. Conflicts which could not be resolved at the planning team level were forwarded to the appropriate government decision-making level for resolution and the subsequent direction was incorporated into the plan. The plan also contains provisions for integrated resolution of resource management conflicts which may be identified in the future.

Commitment to the Brazeau-Pembina Integrated Resource Plan will require allocation of manpower and funds to appropriate agencies. These allocations to the involved agencies will be discussed in the plan implementation document.

9.2 Major Implications of Resource Management Decisions

The following major implications of resource management decisions were identified:

1. The Eastern Slopes Policy zoning categories were used to geographically locate resource management objectives throughout the planning area, including the area which is outside the Eastern Slopes Policy boundary. The refined Eastern Slopes Policy zoning in the planning area is based on more detailed information than the regional zoning. Patent land was not zoned. The following refinements of the zoning occurred:

(a) Prime Protection - There was no Prime Protection zoning in the planning area in the regional zoning and none is recommended in the plan.

(b) Critical Wildlife - The amount of Critical Wildlife zoning in the planning area was maintained to provide protection and long-term security for wildlife populations and habitat. The location of Critical Wildlife zoning was refined to cover mainly organic and riparian habitat areas which are important to a variety of wildlife species. A small amount of Critical Wildlife zoning was applied to protect fisheries populations and aquatic habitat.

(c) Special Use - There were no Special Use areas in the planning area in the regional zoning and none is recommended in the plan.

(d) General Recreation - The General Recreation zoning around the Brazeau Reservoir was reduced to include only those areas which are most suitable for recreational development. A small General Recreation zone on the Elk River was not required to accommodate a small campground and was removed.

(e) Multiple Use - The total amount of Multiple Use zoning was essentially unchanged. The proposed Multiple Use zone covers the majority of the planning area and provides for the management and use of a full range of available resources.

(f) Agriculture - No Agriculture zoning was present in the regional zoning and none is recommended in the plan.

(g) Industrial - The large Industrial zone in the area of the Brazeau Reservoir and power canal was reduced to cover only the dam, pumphouse, powerhouse and associated facilities. Two small Industrial zones in the upper portion of the Dismal Creek watershed and immediately southwest of the Brazeau Reservoir were removed because no significant industrial operations were present at these locations. A small Industrial zone was added to accommodate a new gas processing plant in the area north of the Elk River.

(h) Facility - No Facility zones were present in the regional zoning. A Facility zone was added to recognize the hamlet of Lodgepole.

2. Lands in Township 47, Ranges 8 to 10, west of 5, will be assessed for annual crop production capability during a five-year period. Timber harvesting will continue during the assessment period in a manner which maintains the long-term option for annual crop or timber production. Cutover areas will not be reforested during the assessment period. If

capability for annual crop production is demonstrated after five years, appropriate lands would be made available for agriculture. The rate of agricultural development would depend upon the demand for arable land. If capability for annual crop production is not present, the area would be used for sustained yield timber production with grazing occurring in the context of long term forest management.

3. No significant deletions from the forest land base identified for sustained yield timber production are required to meet other resource management objectives. To ensure that other resource management objectives are achieved, modification of normal timber harvesting operating guidelines may be required.

4. Increased sport fishing opportunities in the planning area may result in heavier use of existing facilities and may create a demand for expansion of existing facilities. If new fisheries are established, additional development of recreational facilities may be required to minimize random camping and water access problems. Development of appropriate water access facilities may be required at several small lakes, if fish stocking efforts are successful.

5. Potential increases in hunting opportunities may result in an increase in use of existing recreational facilities. Extension of the operating season for recreational facilities and a corresponding increase in maintenance and enforcement would be required.

6. Increases in timber harvesting, petroleum and natural gas exploration and development and possibly recreational activity will probably result in increased demand for road development in the planning area. Increased access development will require an increase in monitoring of watershed conditions and may result in more random use of off-highway vehicles.

7. One significant implication is related to mineral exploration and development in the area between the Brazeau Reservoir power canal and the abandoned channel of the Brazeau River. Geotechnical data regarding the stability of structures associated with the dam will be received in due course from the utility which operates these facilities. This information will be considered in joint discussions among affected agencies and will be used to establish rational criteria to govern oil and gas development in the area. The outcome of this rationalization may affect the plan.

APPENDIX 1

GUIDELINES FOR DESIGNATION OF CRITICAL WILDLIFE ZONING

The intent of Critical Wildlife zoning is to protect ranges or terrestrial and aquatic habitats that are crucial to the maintenance of specific fish and wildlife populations. The zoning recognizes only those habitat areas which are crucial to the life cycle of particular species due to vegetation, climate or topography. Critical Wildlife zoning is applied to protect rare, endangered or threatened species as defined by the Committee on the Status of Endangered Wildlife in Canada and species with high recreational or commercial value on a provincial or regional basis as identified in the report Status of the Fish and Wildlife Resource in Alberta.

The following guidelines provide direction for the designation of Critical Wildlife zoning:

1. The priority species in the Eastern Slopes region, which are considered for protection under Critical Wildlife zoning, are:

    a) Ungulates - Elk, sheep, mule deer and caribou. Goats are generally protected under Prime Protection zoning. Critical Wildlife zoning is only used to protect moose and white-tailed deer in areas where wintering concentrations of these species are evident. Habitat for moose is generally not limited in the province. Moose and white-tailed deer are also considered to be less sensitive to disturbance than species such as elk, sheep and goats.

    b) Large Carnivores - Grizzly bear, cougar and lynx. Other species such as wolf and black bear are addressed under Multiple Use zoning wherever possible.

    c) Furbearers - Commercially important species only, as indicated by regional fur sales.

    d) Birds - Colonial nesters and raptors.

    e) Fish - Trout, mountain whitefish and grayling (i.e. salmonids).

2. In most cases, only habitats which support high densities of animals at any phase of the life cycle on a long-term basis are designated as Critical Wildlife zones. Examples of such habitats are indicated for the following species:

a) Ungulates - Areas where the range of the species is restricted such as elk and sheep winter habitat, calving and lambing areas and riparian habitats.

b) Large Carnivores - Denning areas.

c) Furbearers - Areas where the habitat of a commercially important species is limited. Riparian habitats frequently meet this criterion.

d) Fish - Critical spawning, overwintering and migration areas. Although riparian areas along important fisheries streams are usually designated under Multiple Use zoning, Critical Wildlife zoning may be applied along streams which are provincially significant for spawning (e.g., Rundell Creek).

e) Birds - Colonial nesting areas and raptor nests.

NOTE: For all of the above groups of species, small isolated habitats, such as denning areas, will only be designated as Critical Widlife zones when they are in combination with other key wildlife areas.

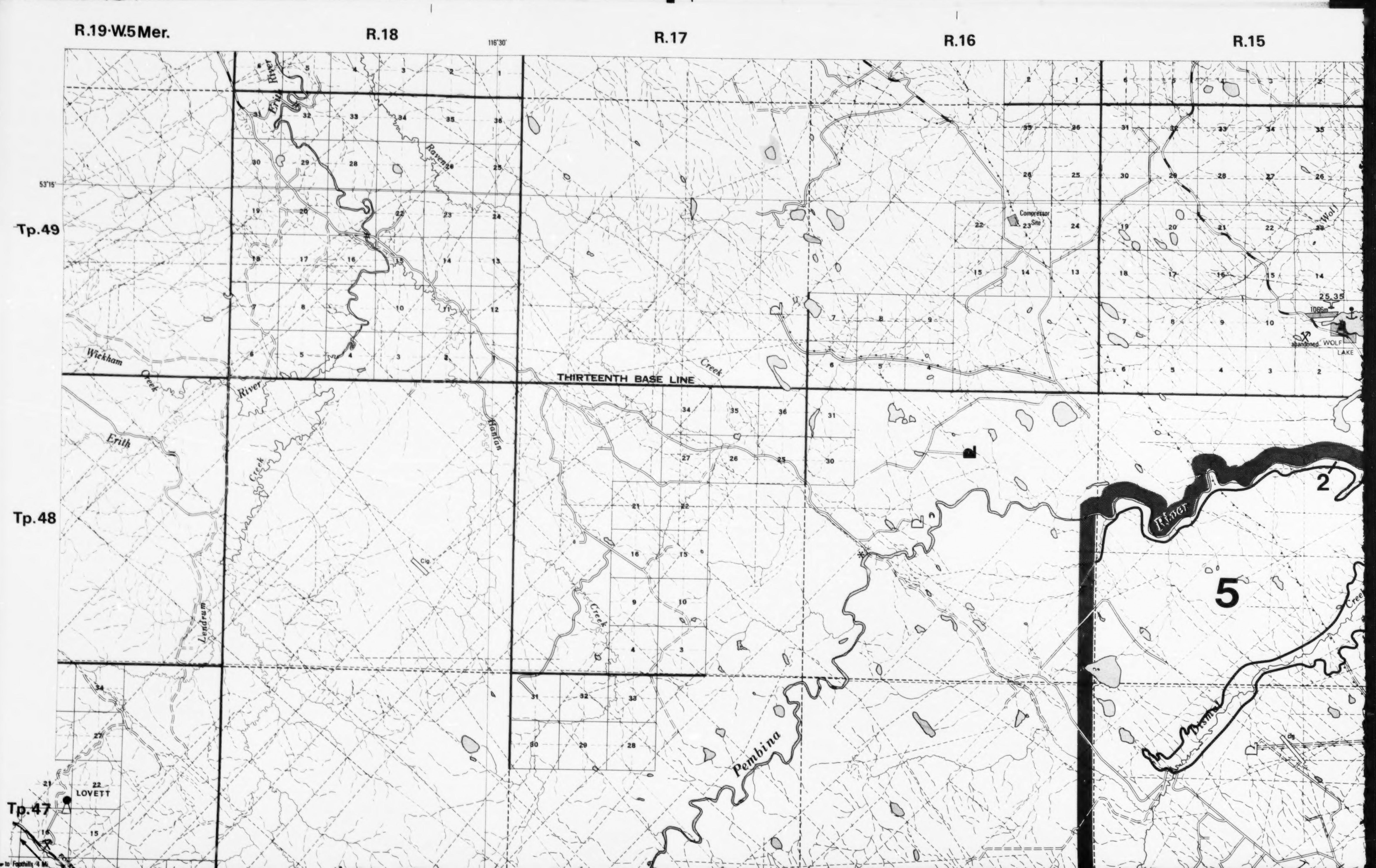
3. In special circumstances, Critical Wildlife zoning may be designated in areas where past, present and future capability of the habitat for wildlife is extremely high. For example, native grassland areas, such as Ya Ha Tinda, Elk Flats and Seven Mile Flats, contain range which has historically been valuable to ungulates and could be used heavily should population levels increase.

4. Ecological Land Classification (ELC) will be used to delineate the boundaries of key or critical habitats in accordance with the above guidelines.

5. Site specific concerns cannot be addressed at the sub-regional level of integrated resource planning and therefore are addressed through the referral system. Examples of site specific concerns are timing constraints on development activities near mineral licks and special timber harvesting requirements in elk range.

Critical Wildlife zoning in the Brazeau-Pembina Planning Area was designated on the basis of the above guidelines. The zoning configuration also reflects compromise between involved resource management agencies and some Critical Wildlife zones were modified to accommodate other resource uses. Zone boundaries may cross ecological boundaries in areas where available information did not justify designation of an entire ELC unit as a Critical Wildlife zone. Collection of more census data may justify modification of the zone boundaries in the future. Critical Wildlife zones frequently cover riparian areas because these areas provide excellent wildlife habitat with food, cover and water in close proximity. Very little Critical Wildlife zoning was applied to protect salmonid fish populations in the Brazeau-Pembina Planning Area.

Although Critical Wildlife zones are crucial to the protection of specific fish and wildlife populations, maintenance of these resources depends on consideration of fish and wildlife values throughout the planning area. Resource use activities in all zones must take into account fish and wildlife resources.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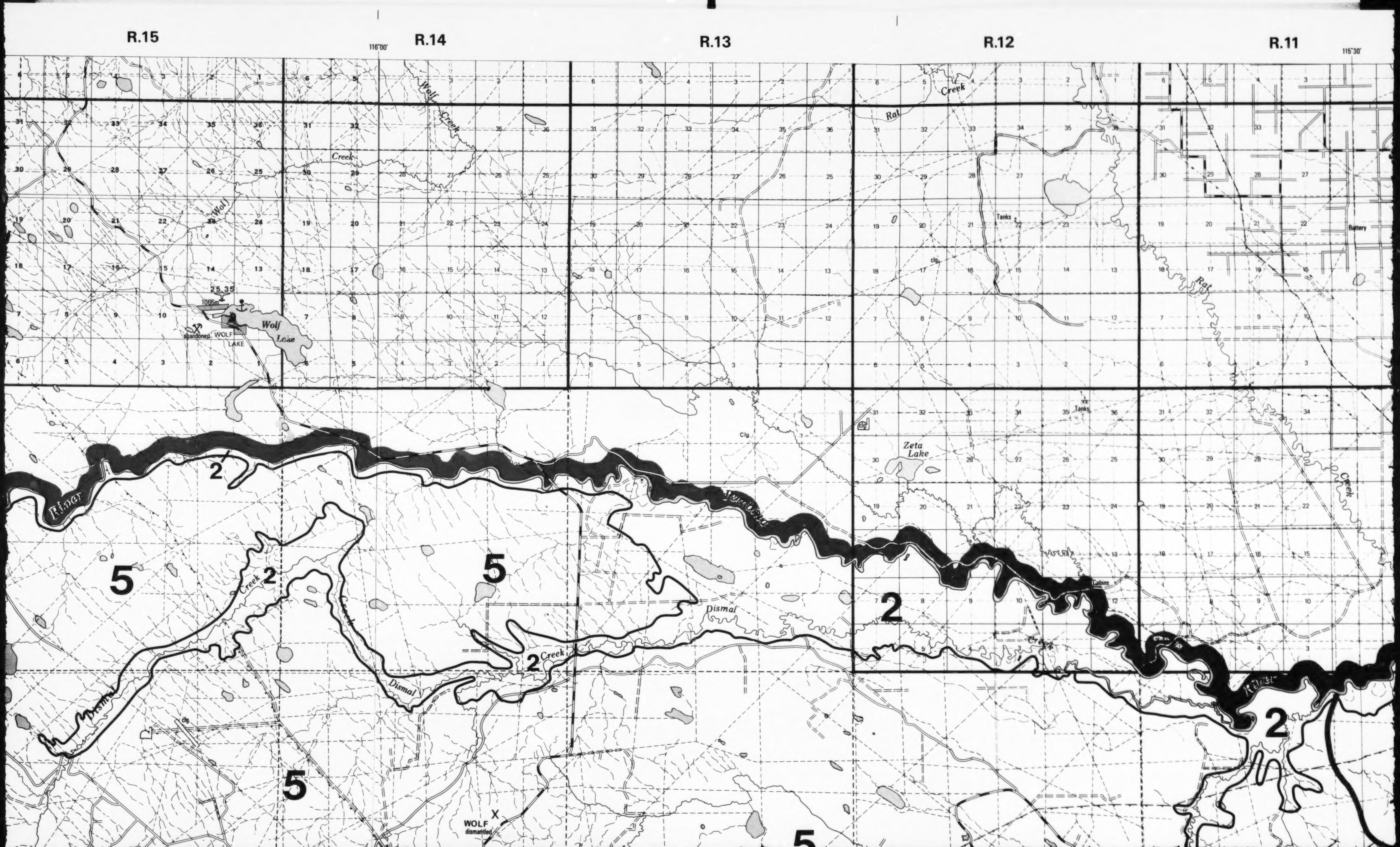

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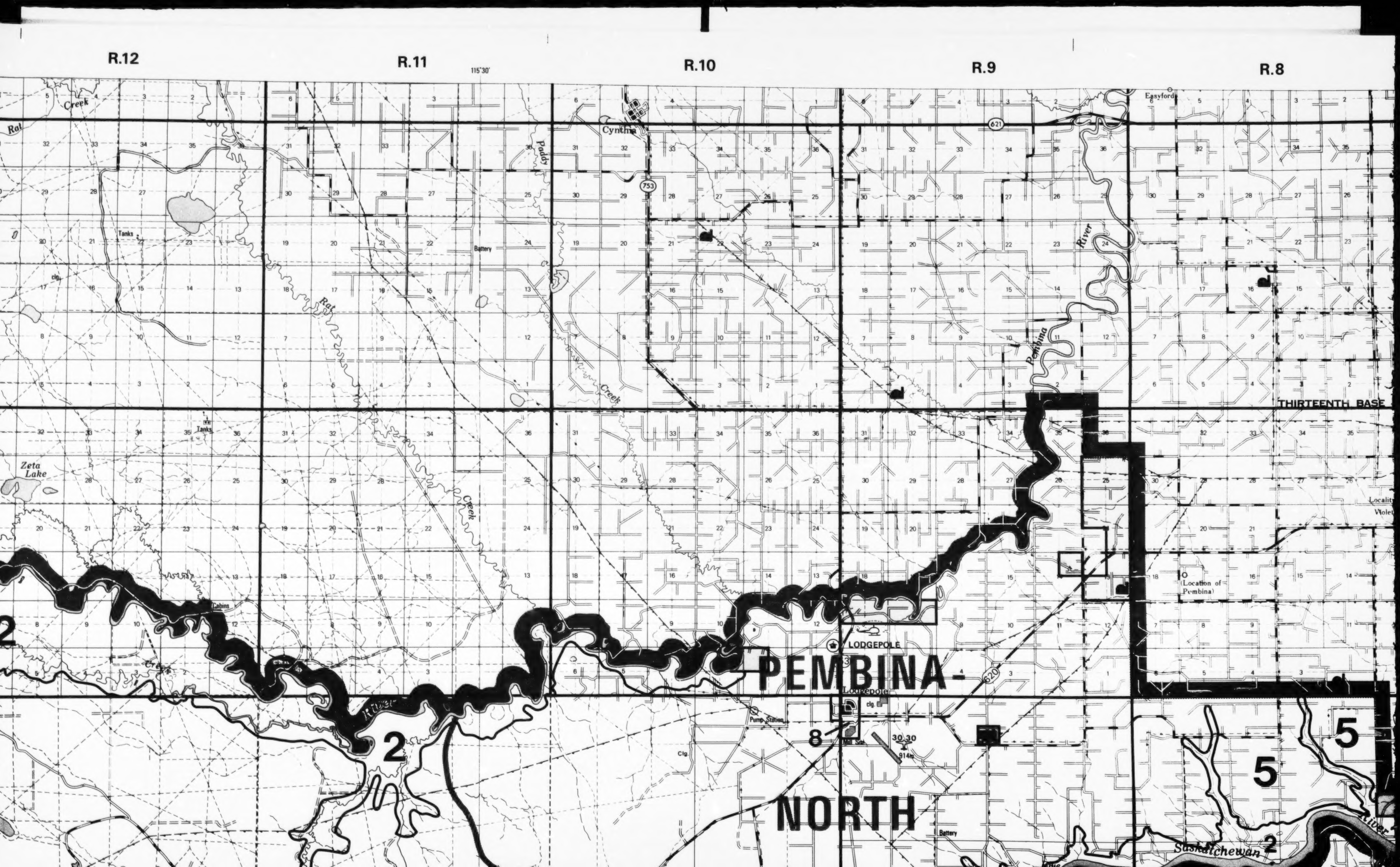
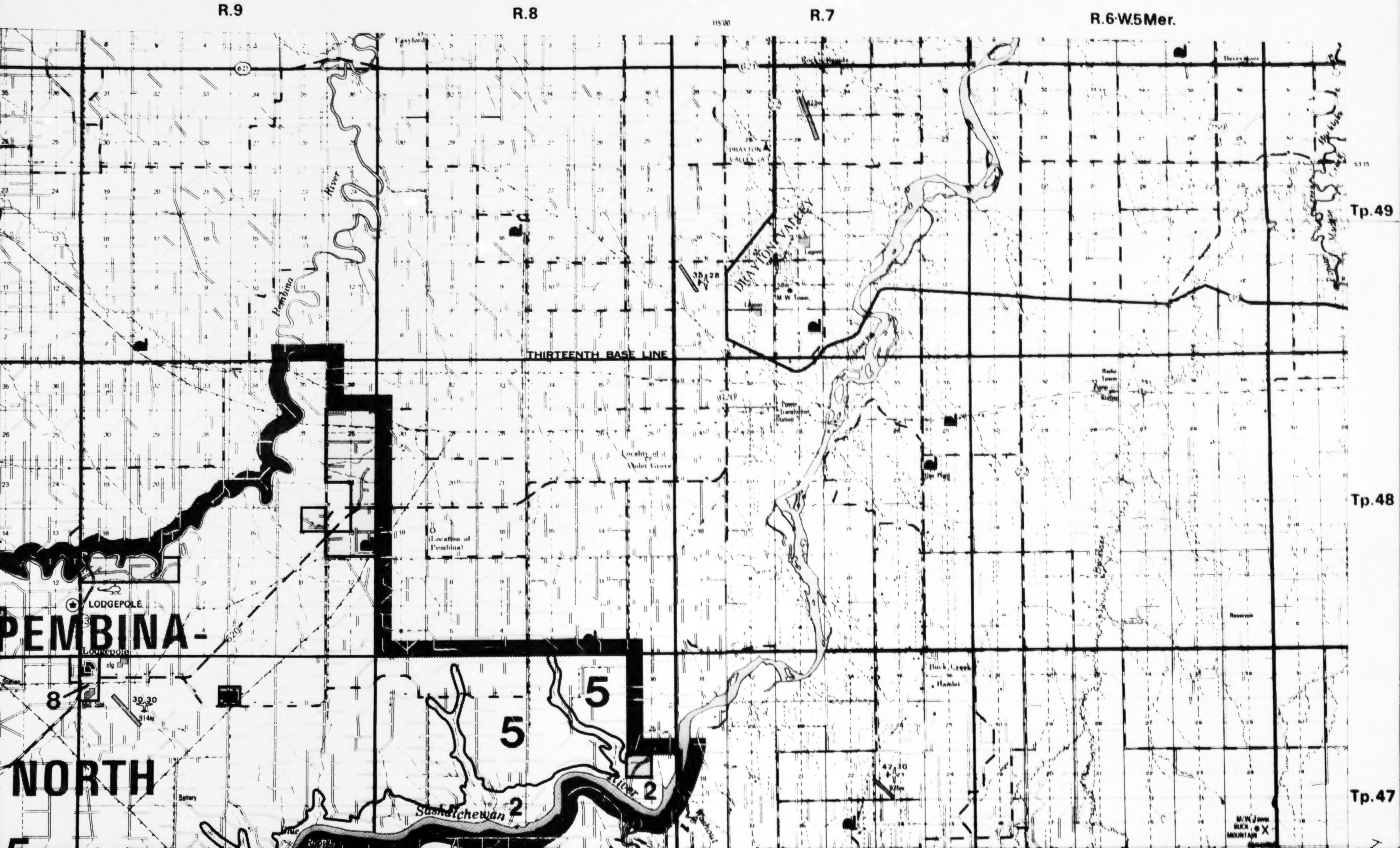
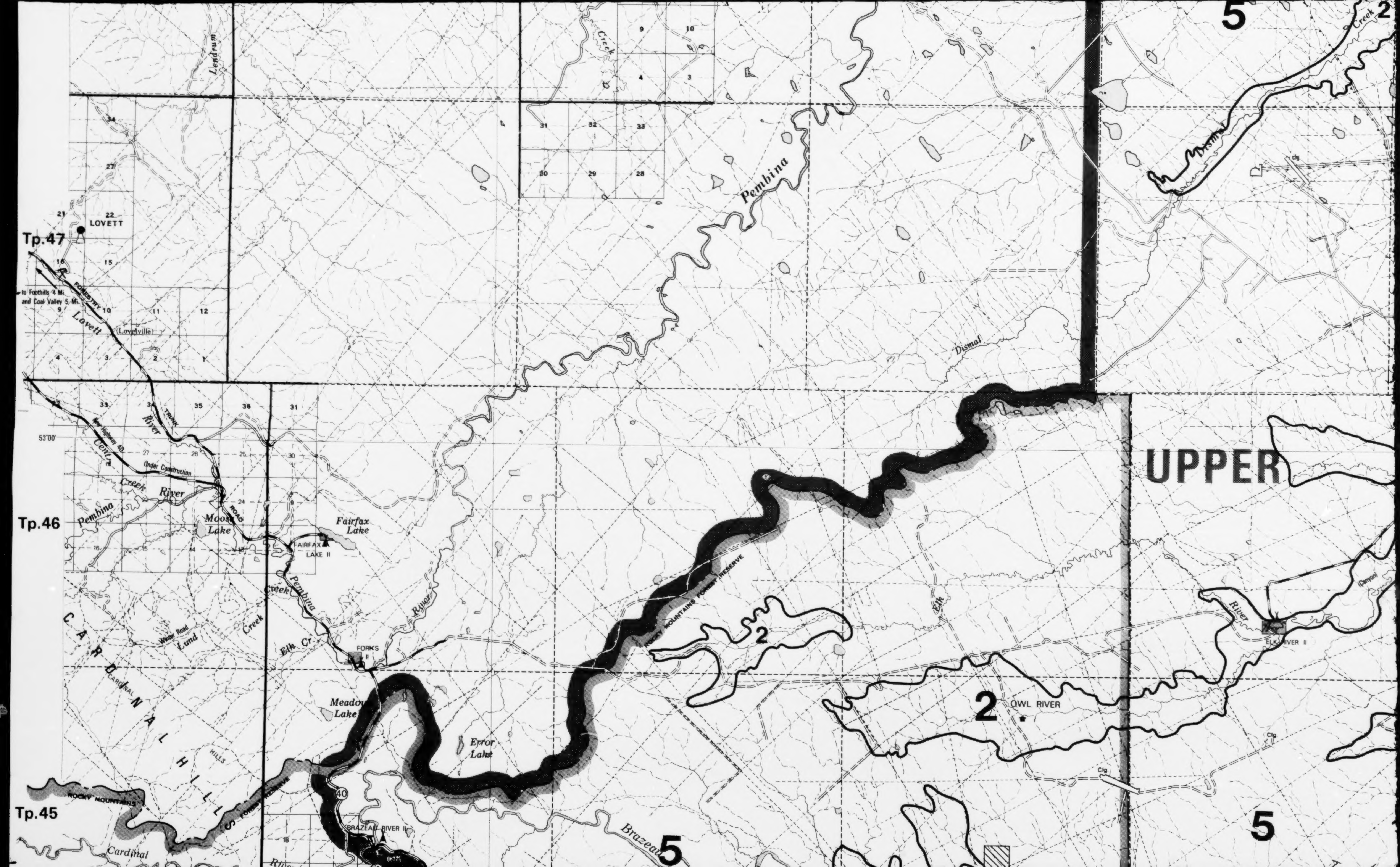
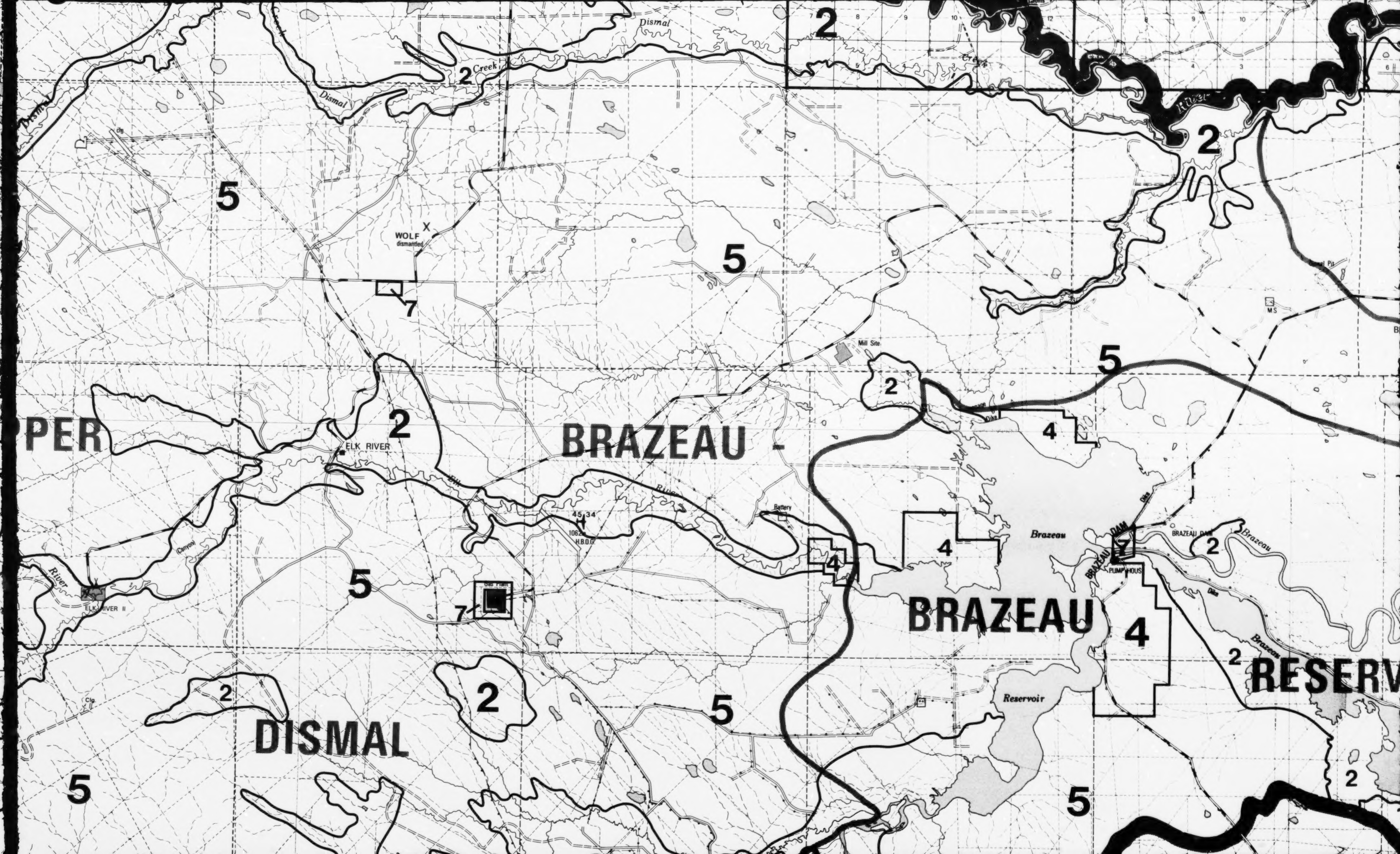
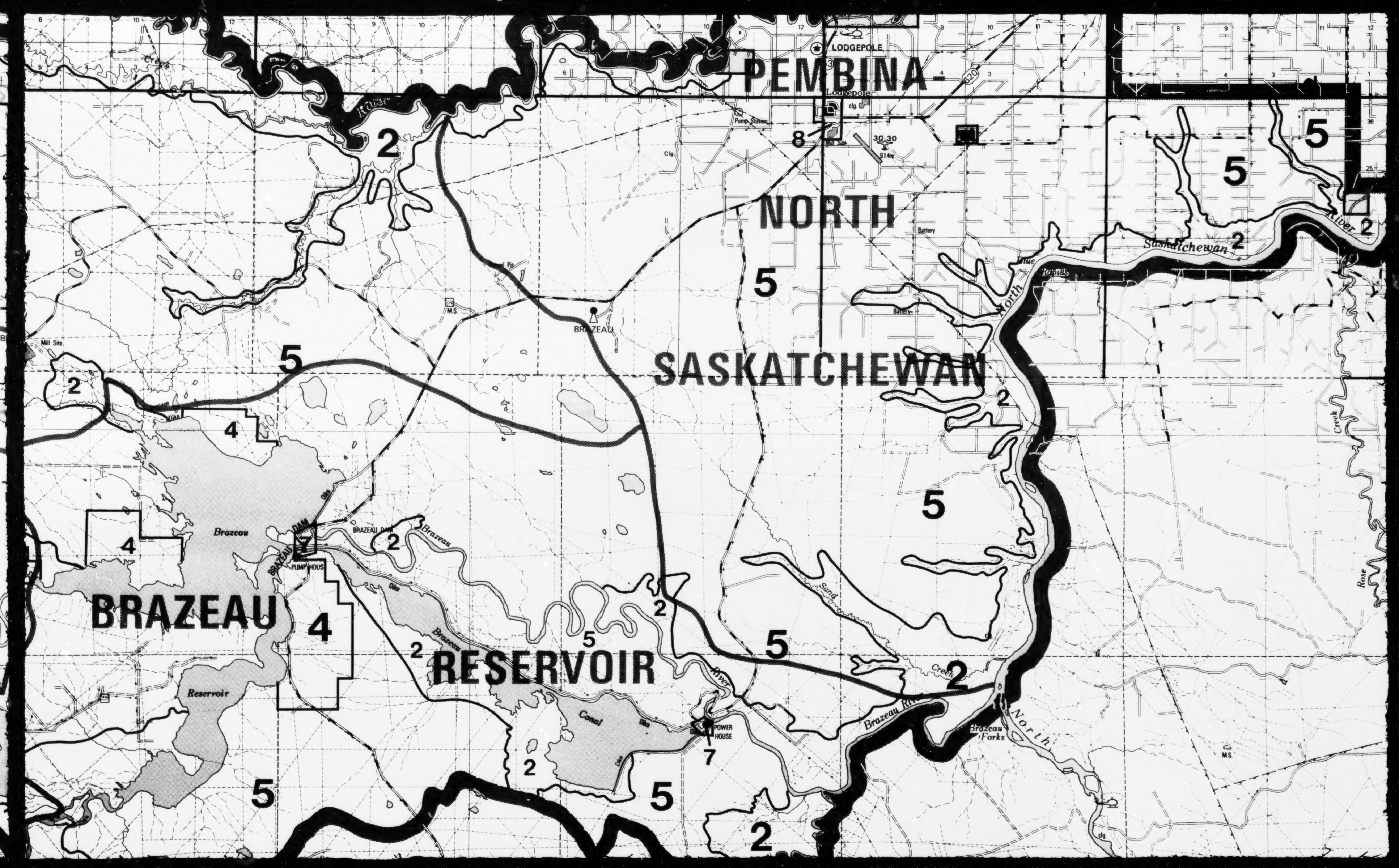
R.12
R.11
115°30'
Wolf
Creek
Rat
Creek
Wolf
Creek
Wolf
Lake
1066m
25,35
abandoned
WOLF
LAKE
Tanks
clg.
Battery
Rat
Tanks
Clg.
clg
Zeta
Lake
Creek
River
Pembina
River
Cabins
Dismal
Creek
Dismal
Creek
Dismal
clg.
WOLF
dismantled
X
5
5
5
5
5
2
2
2
2
2

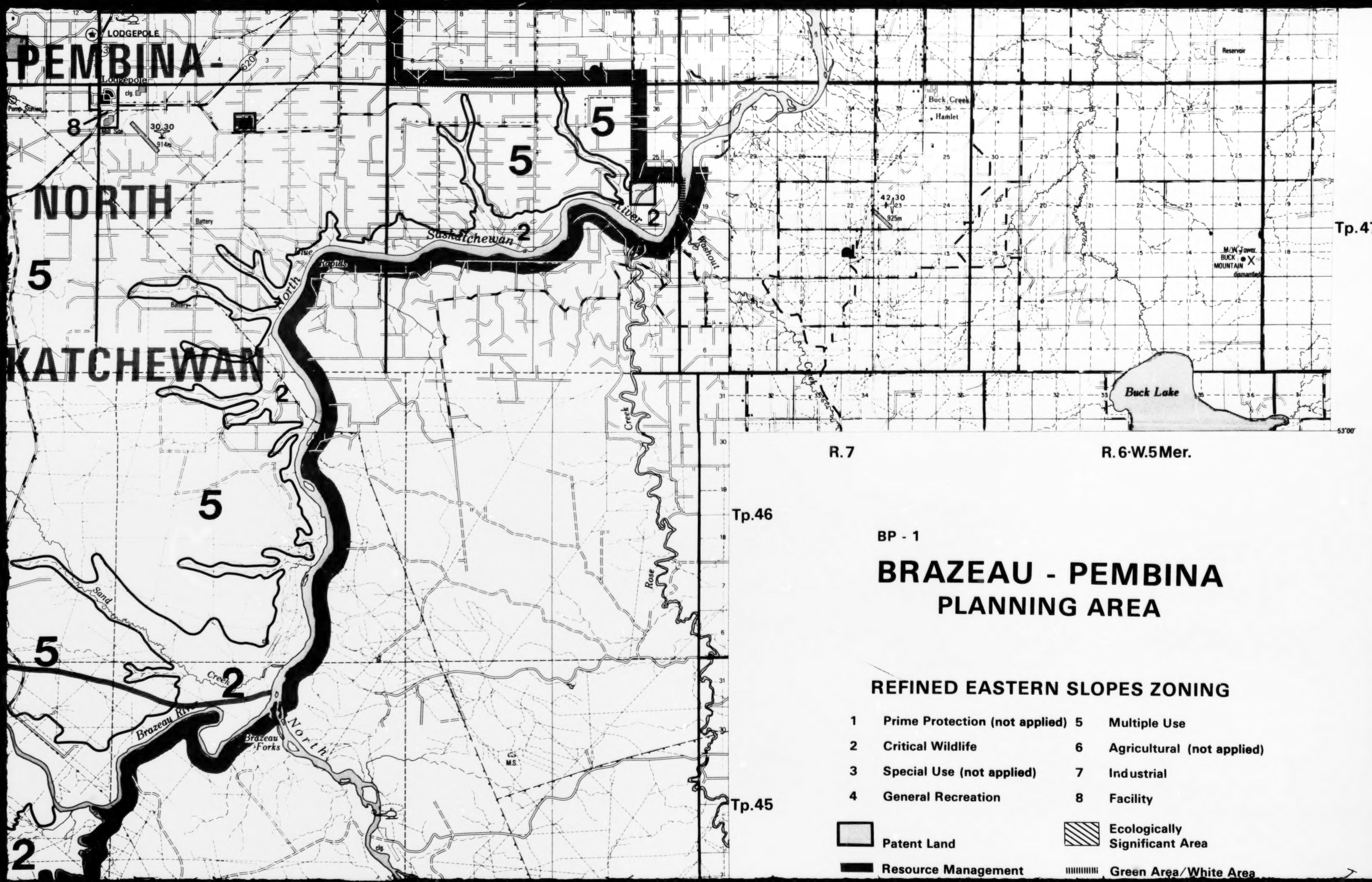

R.12
R.11
115°30'
R.10
R.9
R.8
Rat
Creek
Cynthia
621
753
Easyford
Paddy
Rat
Creek
Tanks
Battery
clg.
River
Pembina
THIRTEENTH BASE
Tanks
Zeta Lake
Creek
Locality
Violet
(Location of Pembina)
Cabins
Creek
River
LODGEPOLE
PEMBINA-
NORTH
Lodgepole
clg.
620
Pump Station
Clg.
Mill Site
30 30
914m
Battery
Saskatchewan
River
2
2
2
5
5
8


R.9
R.8
R.7
R.6·W.5Mer.
Tp.49
Tp.48
Tp.47
Easyford
621
620
DRAYTON VALLEY
M W Tower
Lagoon
THIRTEENTH BASE LINE
Power Transformer Station
Locality of Violet Grove
(Location of Pembina)
Pembina
River
Radio Tower
Buck Creek Hamlet
Reservoir
LODGEPOLE
PEMBINA-
NORTH
Lodgepole
8
30 30
914m
35 28
42 10
5
5
2
2
Saskatchewan
River
Battery
M/W
BUCK MOUNTAIN


5
Creek
2
Lendrum
Creek
9
10
4
3
31
32
33
30
29
28
34
27
21
22
LOVETT
Tp.47
16
15
to Foothills 4 Mi.
and Coal Valley 5 Mi.
FORESTRY
9
10
11
12
Lovett
(Lovettville)
4
3
2
1
Pembina
Dismal
Dismal
33
34
35
36
31
TRUNK
ROAD
River
53°00'
New Highway 40
Under Construction
Centre
27
26
25
30
Creek
River
Pembina
Moose
Lake
24
Tp.46
16
15
14
Fairfax
Lake
FAIRFAX
LAKE II
Pembina
Creek
River
UPPER
C A R D I N A L
H I L L S
CARDINAL
HILLS
Wagon Road
Lund
Creek
Elk Cr.
FORKS
II
ROCKY MOUNTAINS FOREST RESERVE
2
Elk
River
(Canyon)
ELK RIVER II
Meadow
Lake
Error
Lake
2
OWL RIVER
Clg.
Clg.
ROCKY MOUNTAINS
FOREST RESERVE
Tp.45
40
BRAZEAU RIVER II
18
Brazeau
River
Cardinal
5
5


Dismal
Creek
2
Dismal
Dismal
5
WOLF
X
dismantled
7
5
River
2
Creek
Mill Site
M.S
5
2
4
PPER
2
ELK RIVER
BRAZEAU
Battery
45-34
1062
H.B.O.G.
(Canyon)
River
ELK RIVER II
5
Gas Plant
7
4
4
Brazeau
DAM
7
BRAZEAU DAM
BRAZEAU
PUMP HOUS
Brazeau
2
Dike
BRAZEAU
4
2
Brazeau
RESERV
2
2
DISMAL
Reservoir
5
5
5
2


PEMBINA-
NORTH
SASKATCHEWAN
BRAZEAU
RESERVOIR
LODGEPOLE
Lodgepole
clg.
Pump Station
30 30
914m
620
Battery
Blue Rapids
North
Saskatchewan
River
Mill Site
M.S.
BRAZEAU
Brazeau
Reservoir
DAM
BRAZEAU DAM
PUMPHOUSE
Dike
Canal
POWER HOUSE
Brazeau River
Sand
Creek
Rose Creek
Brazeau Forks
North
2
4
5
7
8

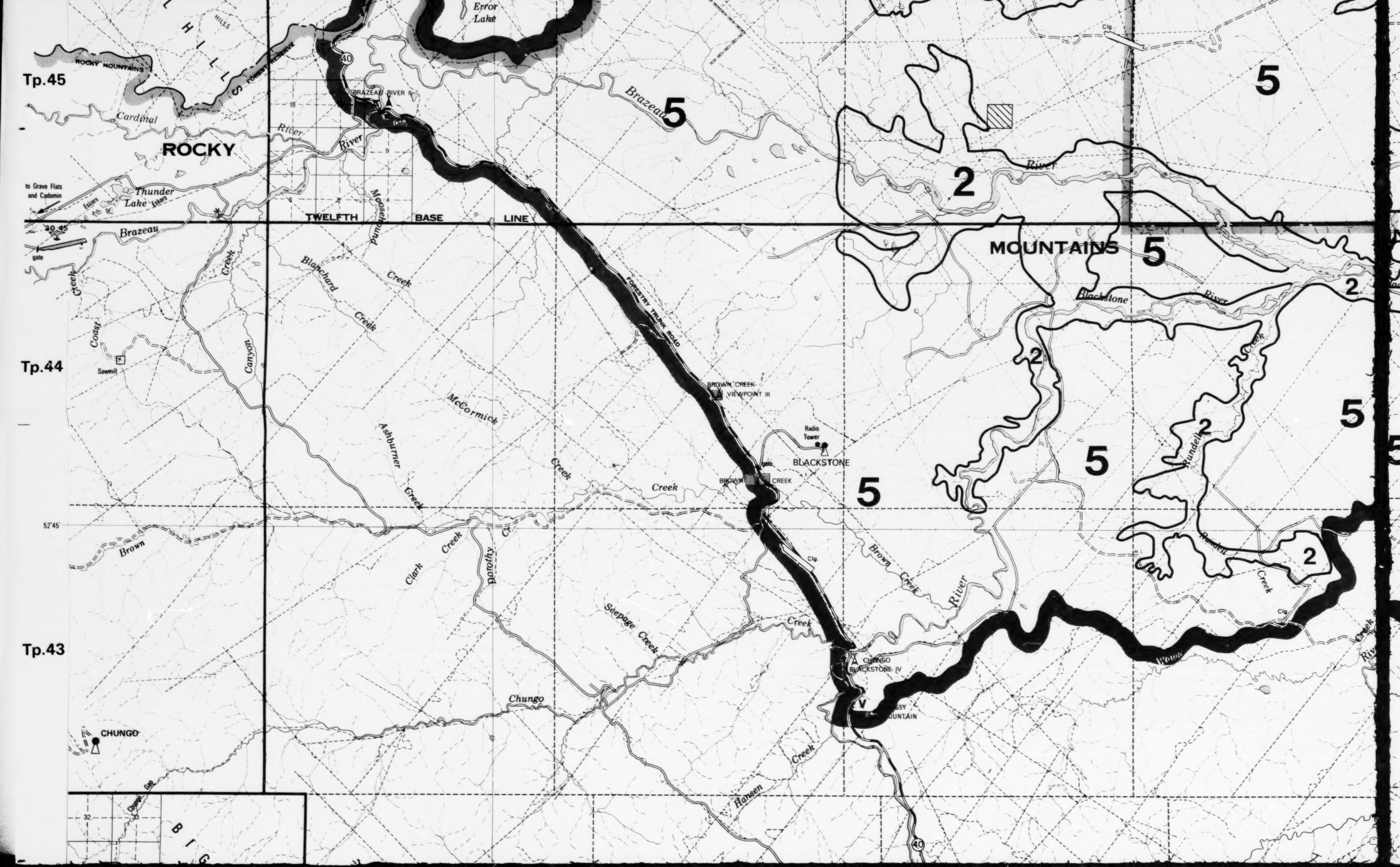

PEMBINA-
NORTH
KATCHEWAN
LODGEPOLE
Lodgepole
Pump Station
620
30 30
914m
Battery
Battery
Saskatchewan
River
North
Blue Rapids
Washout
Buck Creek Hamlet
Reservoir
42 30
925m
M/W Tower
BUCK MOUNTAIN
dismantled
Buck Lake
Creek
Rose
Sand
Creek
Brazeau River
Brazeau Forks
North
M.S.
Tp.47
Tp.46
Tp.45
R.7
R.6·W.5Mer.
53°00'
5
5
5
5
5
5
2
2
2
2
2
2
8

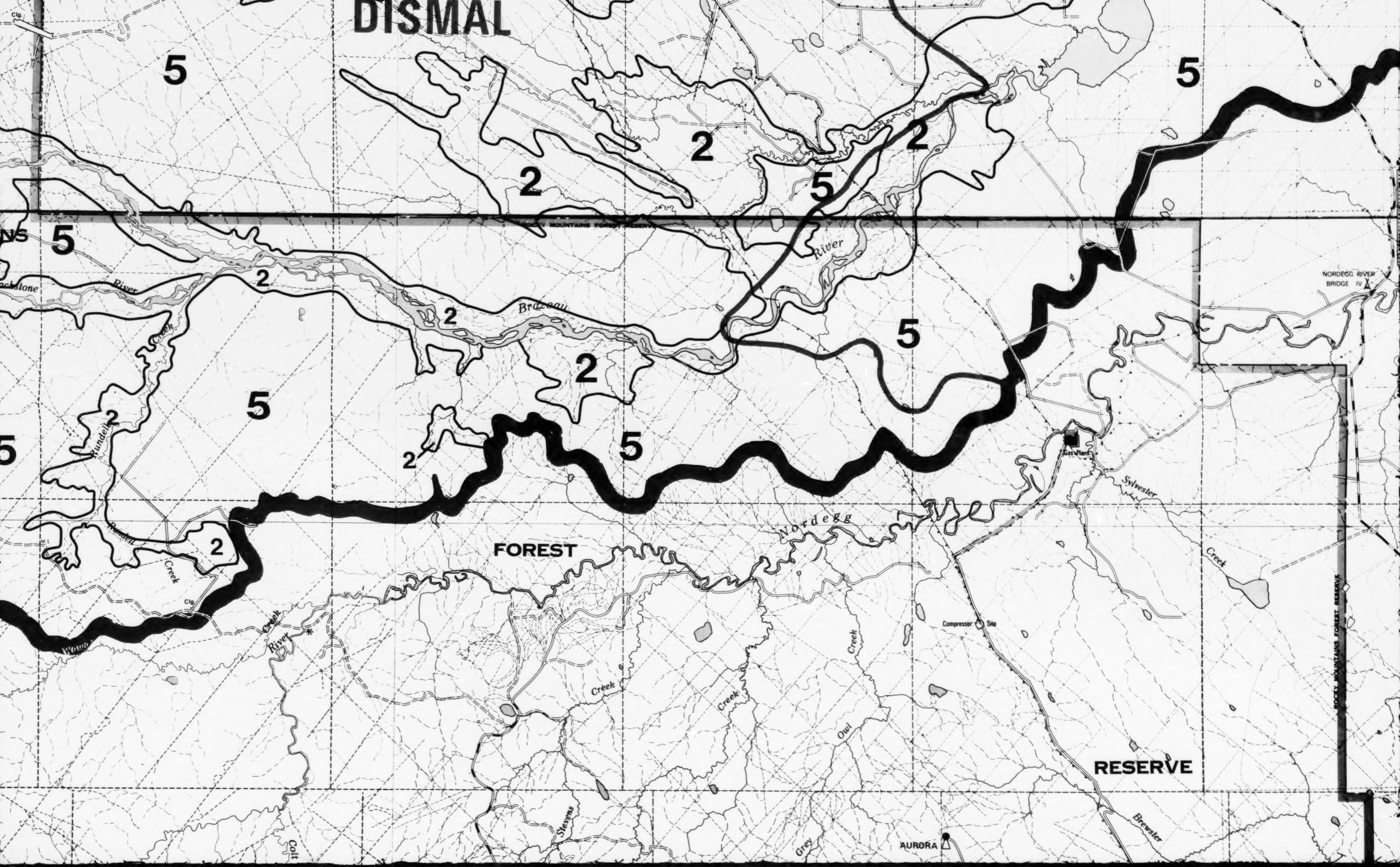
BP - 1

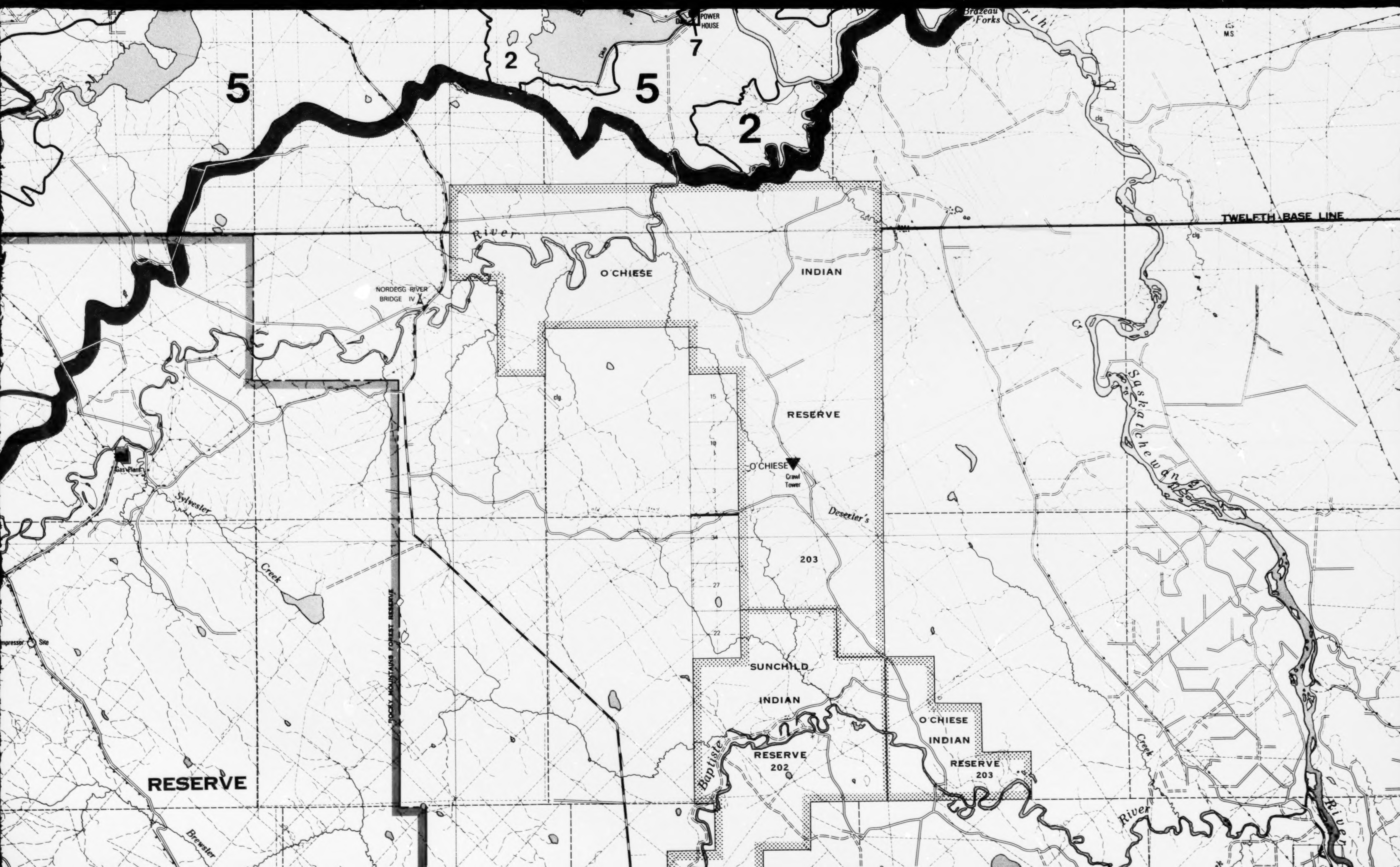
BRAZEAU - PEMBINA PLANNING AREA

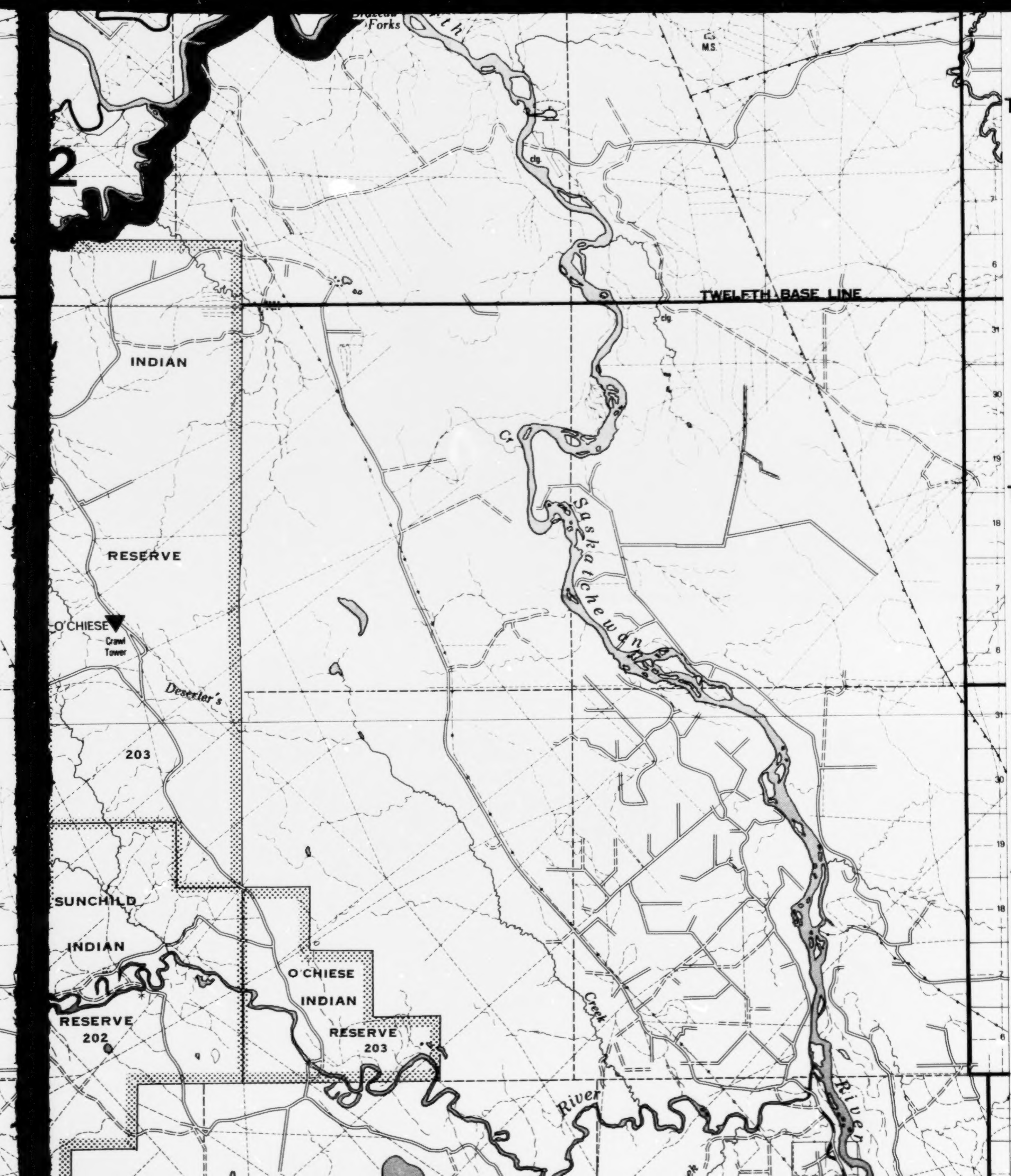
REFINED EASTERN SLOPES ZONING

1	Prime Protection (not applied)	5	Multiple Use
2	Critical Wildlife	6	Agricultural (not applied)
3	Special Use (not applied)	7	Industrial
4	General Recreation	8	Facility
▢	Patent Land	▨	Ecologically Significant Area
■	Resource Management	‖‖‖‖	Green Area/White Area


Error Lake
HILLS
ROCKY MOUNTAINS
FOREST RESERVE
Tp.45
40
BRAZEAU RIVER II
18
Cardinal
River
ROCKY
River
9
Brazeau
5
Clg.
5
River
2
to Grave Flats and Cadomin
Thunder Lake
Eskers
Mosehound
TWELFTH BASE LINE
30.45
Brazeau
gate
Blanchard
Creek
Creek
Creek
MOUNTAINS
5
Blackstone River
2
Creek
Coast
Canyon
FORESTRY TRUNK ROAD
Tp.44
Sawmill
2
BROWN CREEK VIEWPOINT III
McCormick
Ashburner
Radio Tower
BLACKSTONE
Creek
Creek
gate
Creek
BROWN CREEK
5
5
Rundell
2
5
5
52°45'
Brown
Clark
Creek
Dorothy Cr.
Clg.
Brown Creek
River
Rundell
Creek
2
Clg.
Seepage Creek
Creek
Tp.43
CHUNGO BLACKSTONE IV
Wawa
Creek
River
Chungo
V
BASSY MOUNTAIN
CHUNGO
Chungo Gap
32
33
Hansen Creek
40
BIG


DISMAL
5
2
2
2
5
2
5
NS
5
2
2
5
2
5
2
5
2
5
2
Blackstone
River
Brazeau
River
River
Rundell
Creek
Creek
Creek
Rundell
FOREST
Nordegg
Sylvester
Creek
Gas Plant
NORDEGG RIVER BRIDGE IV
MOUNTAINS FOREST RESERVE
ROCKY MOUNTAINS FOREST RESERVE
Compressor Site
Creek
Creek
Creek
Owl
Grey
Stevens
Colt
River
Creek
Brewster
RESERVE
AURORA
Clg.
Clg.


POWER HOUSE
7
Brazeau Forks
MS
5
2
5
2
TWELFTH BASE LINE
River
O'CHIESE
INDIAN
RESERVE
NORDEGG RIVER BRIDGE IV
clg.
clg.
clg.
15
10
3
34
27
22
O'CHIESE
Crawl Tower
Desertier's
203
Gas Plant
Sylvester
Creek
ROCKY MOUNTAINS FOREST RESERVE
mpressor Site
SUNCHILD
INDIAN
RESERVE
202
Baptiste
O'CHIESE
INDIAN
RESERVE
203
Saskatchewan
Creek
River
River
RESERVE
Brewster


Brazeau Forks
M.S.
2
Tp.45
clg.
TWELFTH BASE LINE
INDIAN
RESERVE
O'CHIESE
Crawl Tower
Deserter's
203
Saskatchewan
Tp.44
52°45'
Tp.43
SUNCHILD
INDIAN
RESERVE
202
O'CHIESE
INDIAN
RESERVE
203
River
Creek
River

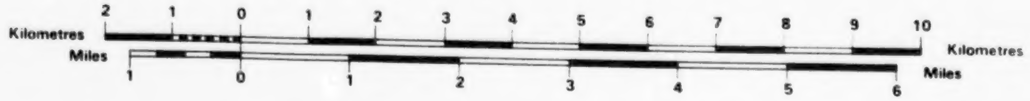
2	**Critical Wildlife**	6	**Agricultural (not applied)**
3	**Special Use (not applied)**	7	**Industrial**
4	**General Recreation**	8	**Facility**

☐	**Patent Land**	▨	**Ecologically Significant Area**
▬	**Resource Management Area Boundary**	⦀	**Green Area/White Area Boundary**

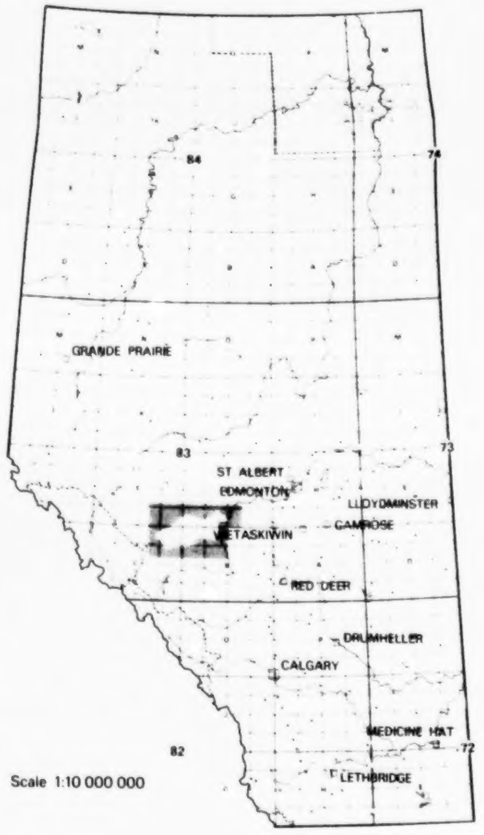
APRIL 1986

WEST OF THE FIFTH MERIDIAN

SCALE 1:100 000 N.T.S. 83 B, C, F, G

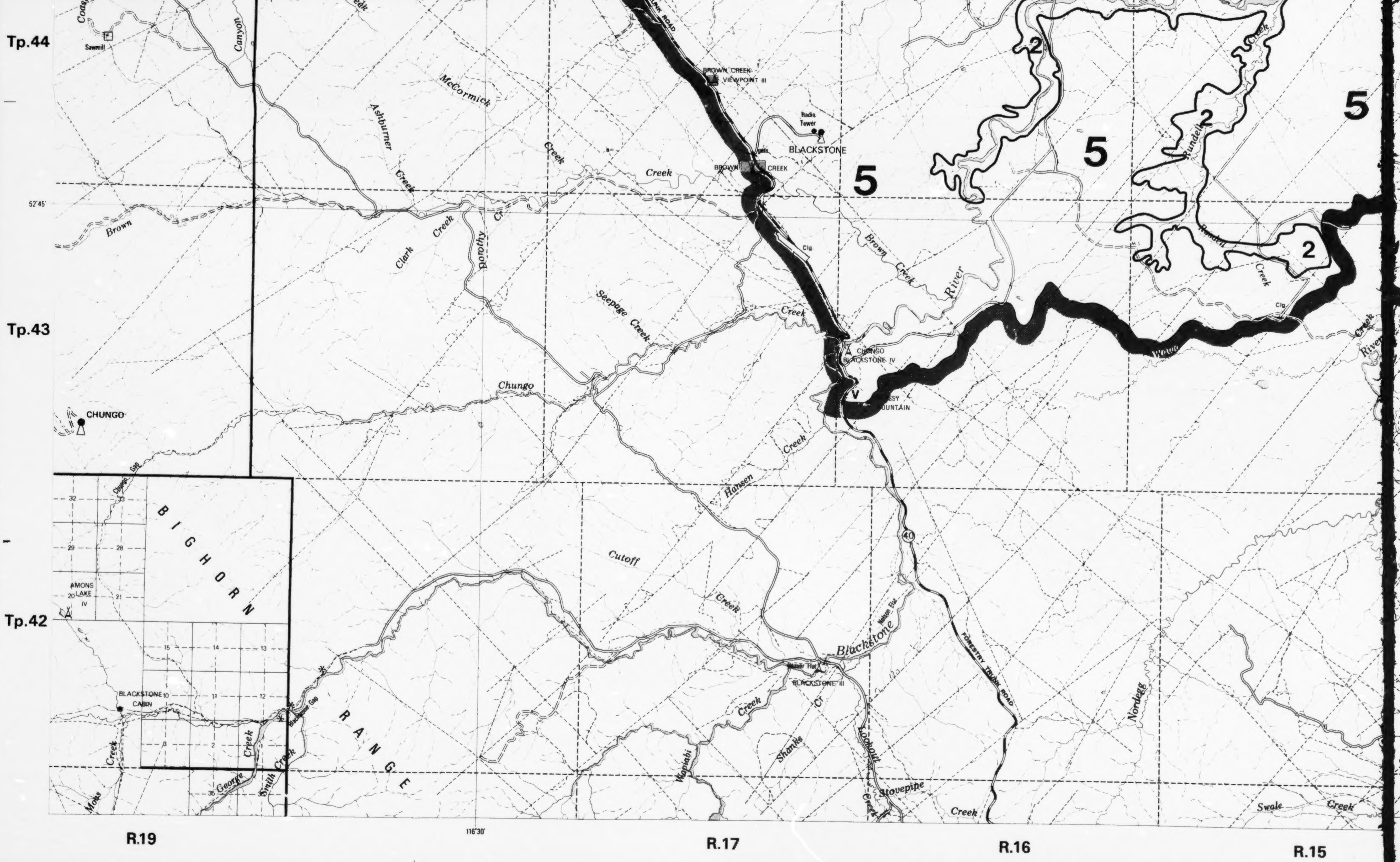

Kilometres
2 1 0 1 2 3 4 5 6 7 8 9 10
Kilometres
Miles
1 0 1 2 3 4 5 6
Miles

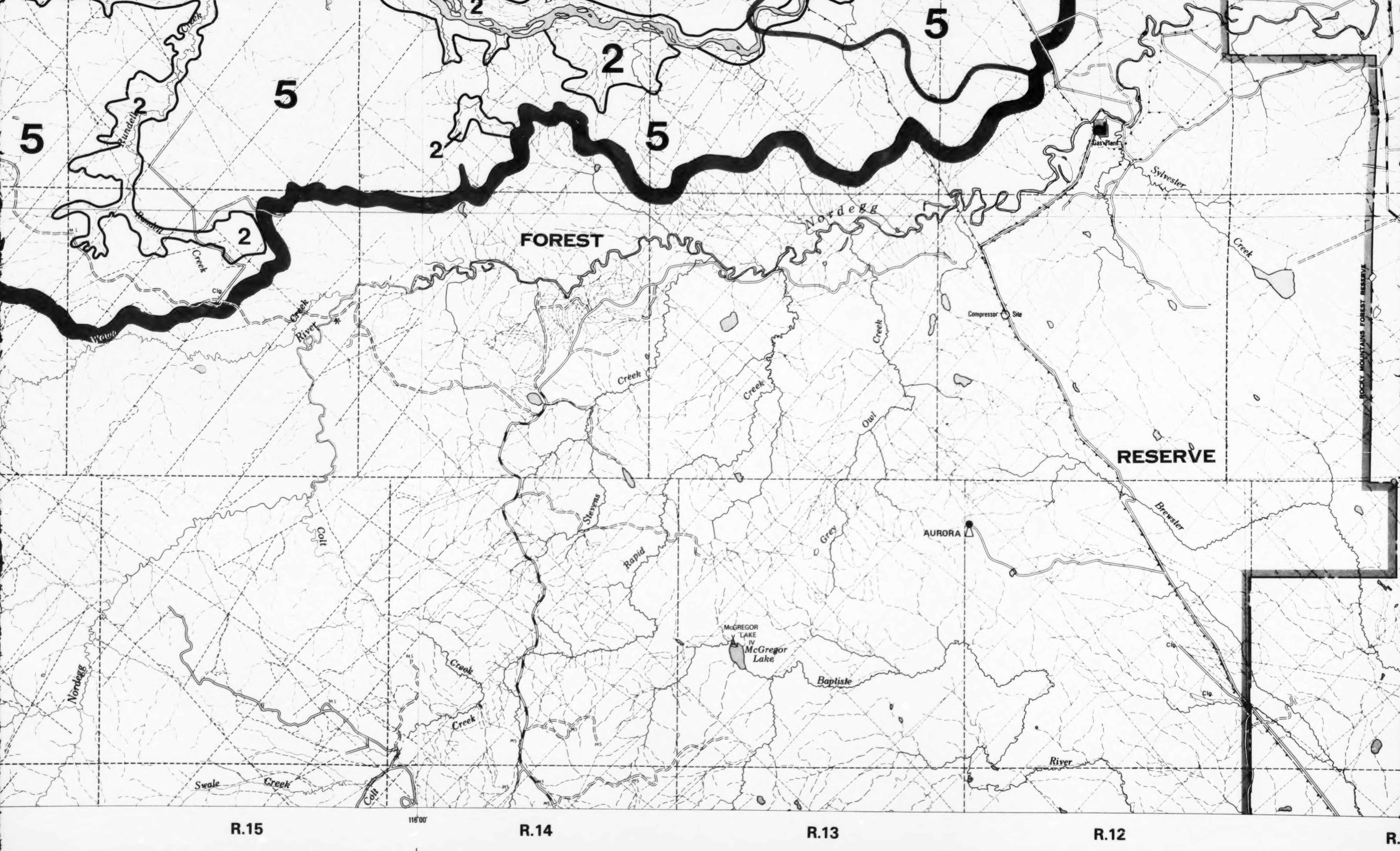
CA2ALEQ 59
86509 c.2

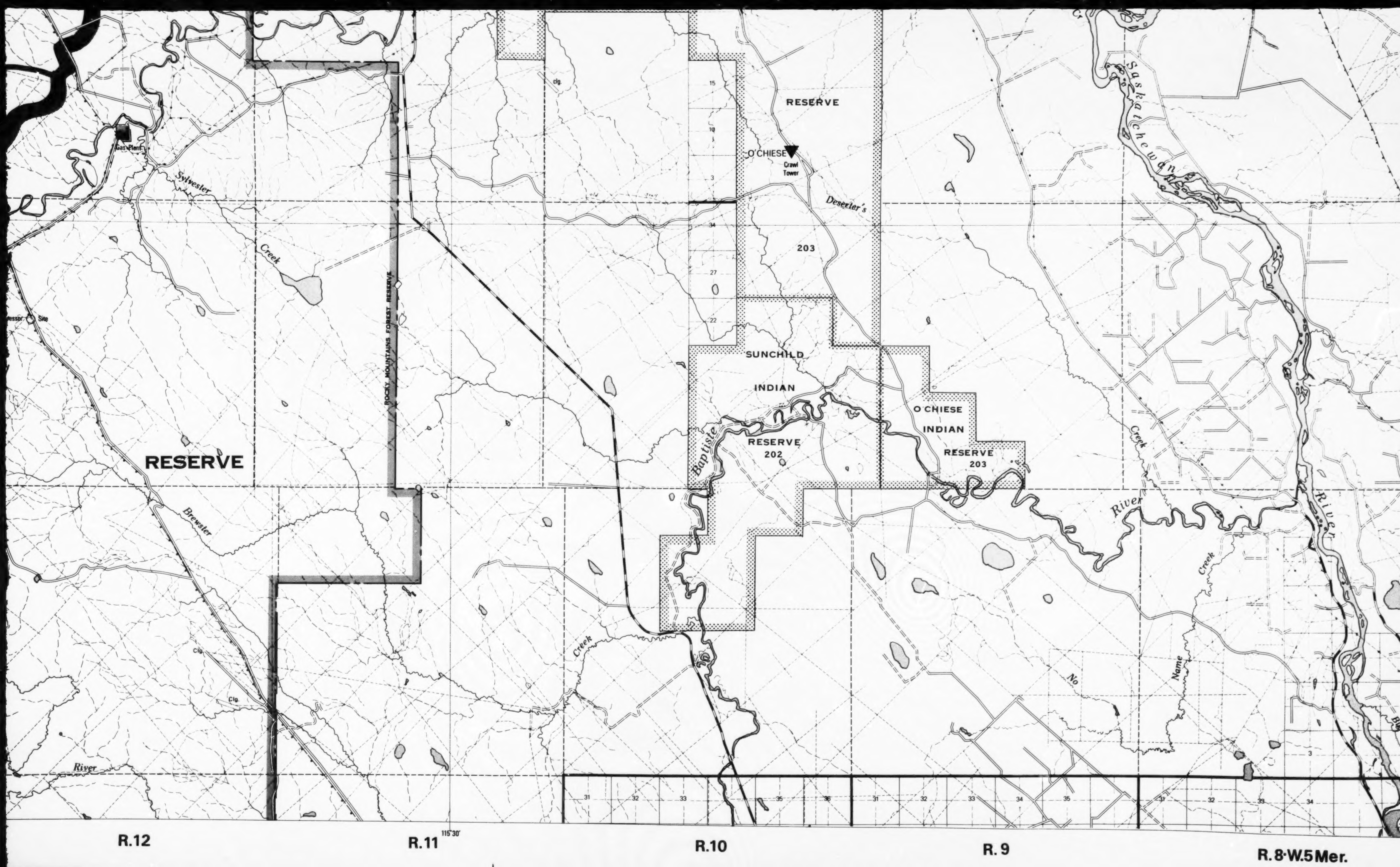

84
74
GRANDE PRAIRIE
83
73
ST. ALBERT
EDMONTON
LLOYDMINSTER
WETASKIWIN
CAMROSE
RED DEER
DRUMHELLER
CALGARY
MEDICINE HAT
72
LETHBRIDGE
82
Scale 1:10 000 000

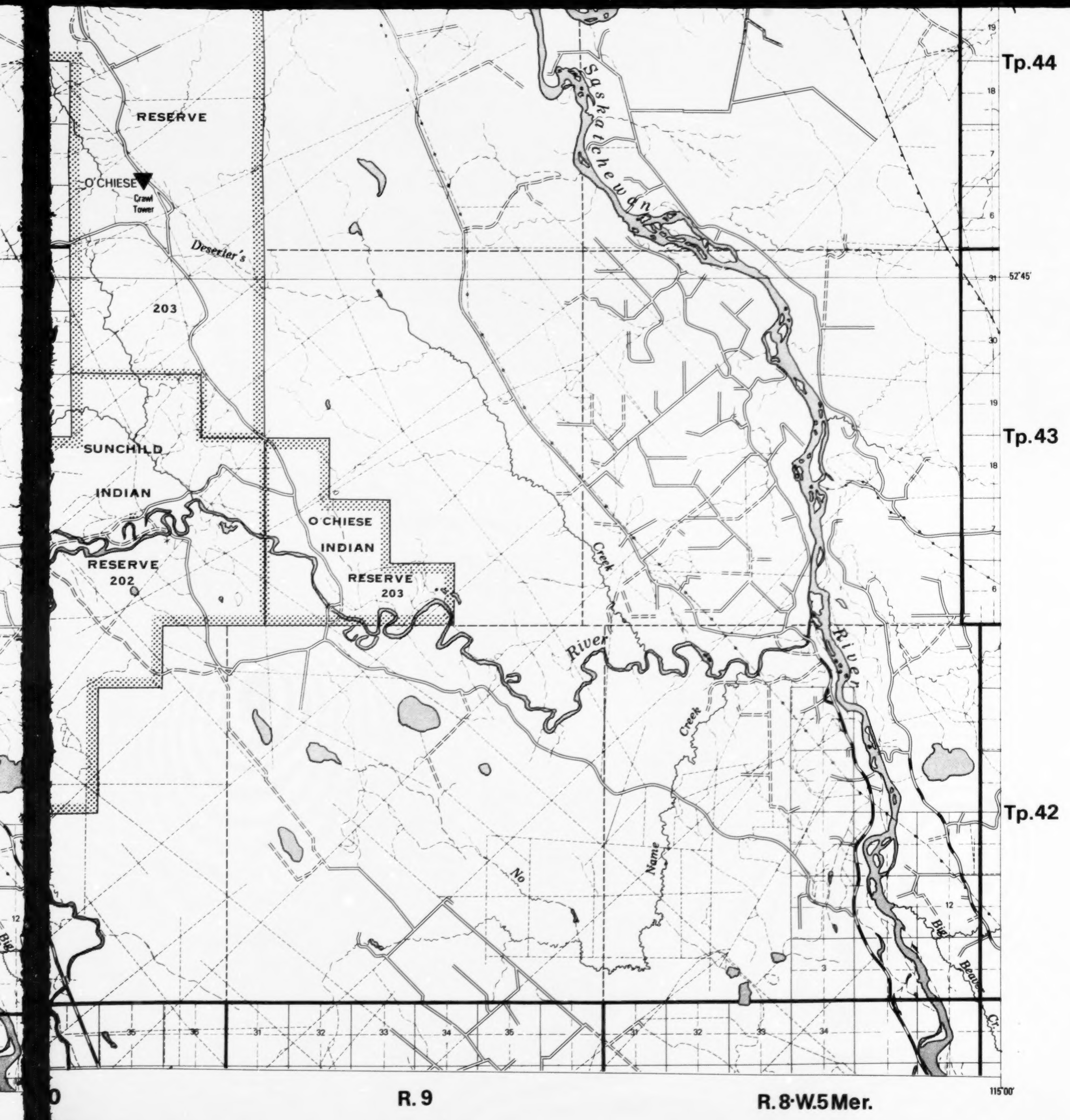
LEGEND

HARD SURFACE – all weather		FOREST HEADQUARTERS	
LOOSE OR STABILIZED SURFACE –all weather main route		RANGER STATION	
		FORESTRY CABIN	
LOOSE OR STABILIZED SURFACE –secondary route		RECREATION AREA	

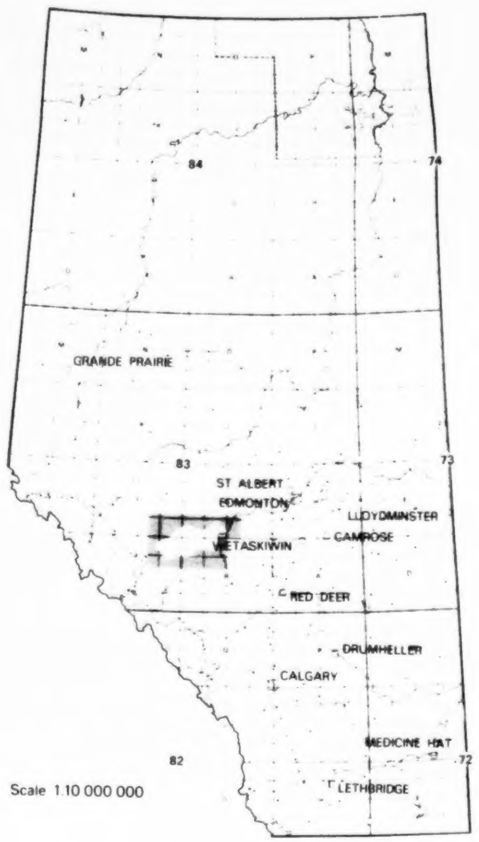

Tp.44
Tp.43
Tp.42
R.19
R.17
R.16
R.15
116°30'
52°45'
Sawmill
Canyon
McCormick
Ashburner
Creek
BROWN CREEK VIEWPOINT III
Radio Tower
BLACKSTONE
BROWN CREEK
5
2
Brown
Clark
Creek
Dorothy
Cr
Seepage Creek
Brown Creek
River
Rundell
Creek
Clg.
Chungo
CHUNGO
CHUNGO BLACKSTONE IV
MOUNTAIN
Hansen
Creek
Cutoff
Creek
BIGHORN
RANGE
AMONS LAKE IV
Chungo Gap
BLACKSTONE CABIN
Blackstone Gap
George
Smith Creek
Moss
Creek
40
FORESTRY TRUNK ROAD
Blackstone
Nelson Bu
Beaver Flat
BLACKSTONE III
Creek
Shanks
Cr
Lookout
Stovepipe
Creek
Wapiabi
Nordegg
Swale
Creek
Wawa
River


5
2
5
2
2
5
2
5
2
Rundell
Rundell
Creek
Creek
2
Gas Plant
Sylvester
Nordegg
FOREST
Creek
Clg
Wawa
River
Creek
Compressor Site
Creek
Creek
Creek
Creek
Owl
ROCKY MOUNTAINS FOREST RESERVE
RESERVE
Brewster
Stevens
Colt
Rapid
Grey
AURORA
McGREGOR LAKE IV
McGregor Lake
Baptiste
Clg
Clg
Nordegg
Creek
Creek
MS
River
Swale
Creek
Colt
R.15
116°00'
R.14
R.13
R.12
R.


Gas Plant
Sylvester
Creek
RESERVE
Brewster
River
Clg.
Clg.
ROCKY MOUNTAINS FOREST RESERVE
essor Site
Creek
clg.
15
10
3
34
27
22
RESERVE
O'CHIESE
Crawl Tower
Deserter's
203
SUNCHILD
INDIAN
RESERVE
202
Baptiste
O'CHIESE
INDIAN
RESERVE
203
River
Creek
Creek
No
Name
Saskatchewan
River
31
32
33
35
36
31
32
33
34
35
31
32
33
34
3
R.12
R.11
115°30'
R.10
R.9
R.8·W.5Mer.


Tp.44
Tp.43
Tp.42
RESERVE
O'CHIESE
Crawl Tower
Deserier's
203
SUNCHILD
INDIAN
RESERVE
202
O'CHIESE
INDIAN
RESERVE
203
Saskatchewan
River
River
Creek
Creek
No
Name
Big
Big
Beaver
Cr.
52°45'
115°00'
R.9
R.8·W.5Mer.

CA2ALE0 59
86S09
c.2


84
74
GRANDE PRAIRIE
83
73
ST ALBERT
EDMONTON
LLOYDMINSTER
CAMROSE
WETASKIWIN
RED DEER
DRUMHELLER
CALGARY
MEDICINE HAT
82
72
LETHBRIDGE
Scale 1:10 000 000

LEGEND

HARD SURFACE – all weather
LOOSE OR STABILIZED SURFACE –all weather main route
LOOSE OR STABILIZED SURFACE –secondary route
LOOSE SURFACE – dry weather
TRUCK TRAIL
SEISMOGRAPH LINE OR TRAIL
BRIDGE
FERRY
FORD
RAILWAY
CUTBANK
TOWNSHIP LINE
  unsurveyed
  surveyed
SECTION LINE
QUARTER SECTION LINE
TRANSMISSION LINE
PIPE LINE

FOREST HEADQUARTERS
RANGER STATION
FORESTRY CABIN
RECREATION AREA
  developed
  partial or undeveloped
BOAT STORAGE
LOOKOUT
  primary
  secondary
  point or crawl tower
FLOAT LANDING
AIRSTRIP LENGTH AND ELEVATION (A.S.L.) in hundreds of feet
AIRSTRIP – regular maintenance
AIRSTRIP – occasional maintenance
HELIPORT MOT.
HELIPAD
LOCAL NAME – not recognized by the Geographical Names Board ( )

Alberta
ENERGY AND NATURAL RESOURCES